GOOD DAY
TO EACH OF YOU…

IDENTIFYING OVARIAN CANCER SYMPTOMS: PROMOTING EARLY DIAGNOSIS, TREATMENT AND IMPROVED OUTCOMES THROUGH RAPID REFERRAL

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WOMEN & INFANTS HOSPITAL

Disclosures

- I have no relevant conflicts of interest to disclose

LEARNING OBJECTIVES

After participating in this webcast, participants should be better able to:

Awareness: Identify most common signs and symptoms that should raise suspicion for ovarian cancer
Awareness: Identify patients at higher than average risk for ovarian cancer based on history taking

Knowledge: Describe the incidence of ovarian cancer nationally
Knowledge: Describe the impact of ovarian cancer in Rhode Island

Ability: Identify principles of cancer risk assessment and genetic counseling
Ability: Identify survivorship and quality of life advantages for patients referred rapidly after diagnosis to gynecologic oncologists

Intention - Outline evidence-based guidelines for effective ovarian cancer symptom workup
Intention – Action steps for rapid referral to gynecologic oncologist

CDC Centers for Disease Control and Prevention
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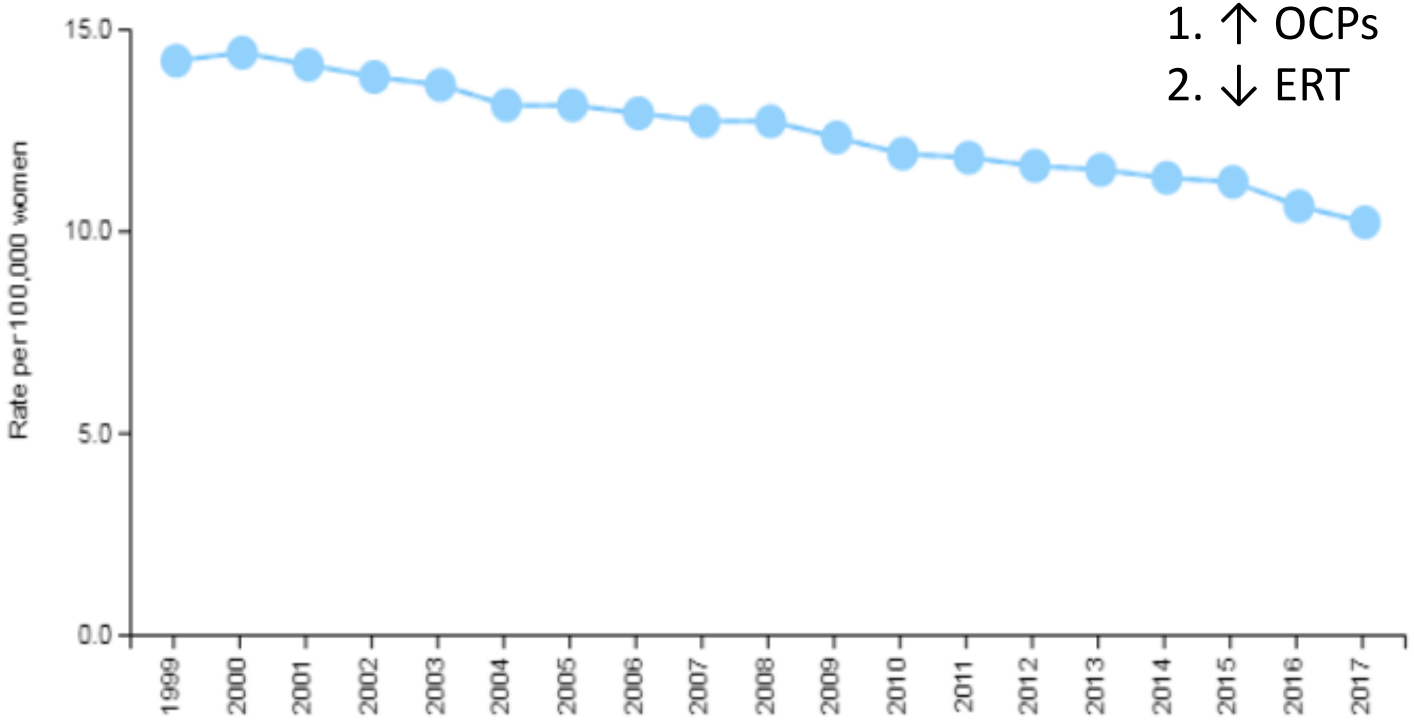
Annual Rates of New Cancers, 1999-2017

Ovary, United States

Decrease due to
1. ↑ OCPs
2. ↓ ERT



Data source – U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2019 submission data (1999-2017): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, June 2020.

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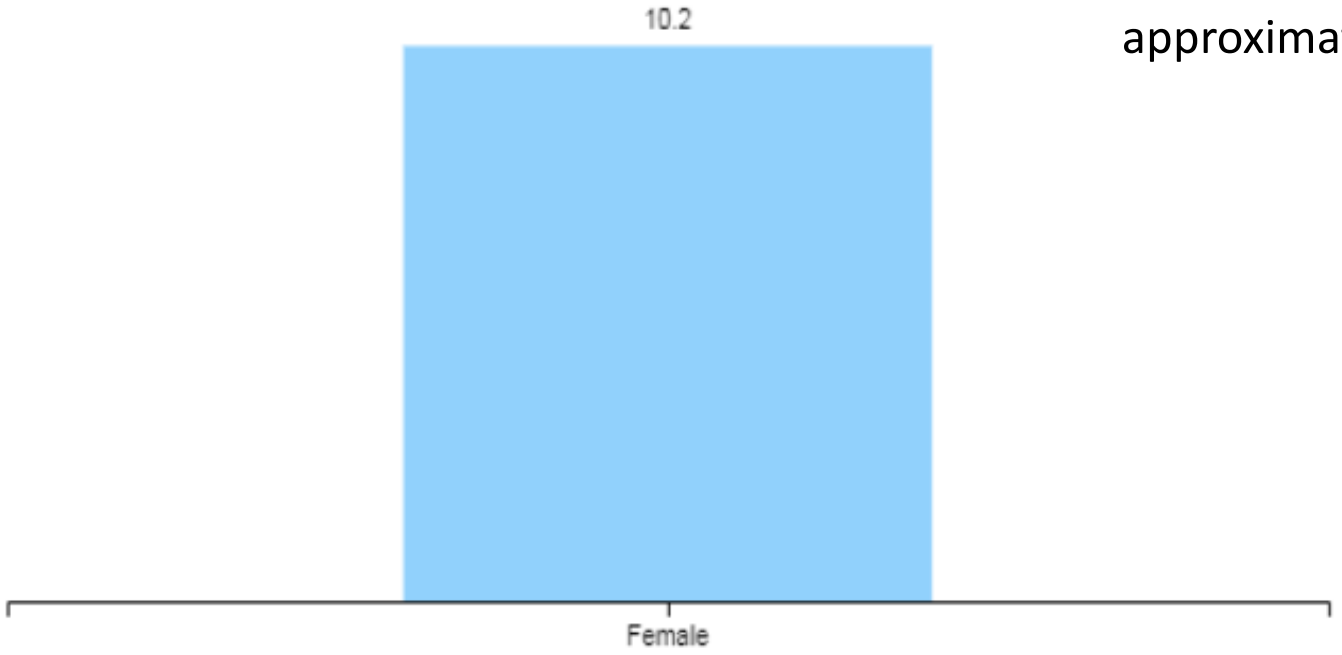
Rate of New Cancers, All Races/Ethnicities, Female

Ovary, United States, 2017



Peak at approximately 15

Rate per 100,000 women

Data source – U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2019 submission data (1999-2017): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, June 2020.

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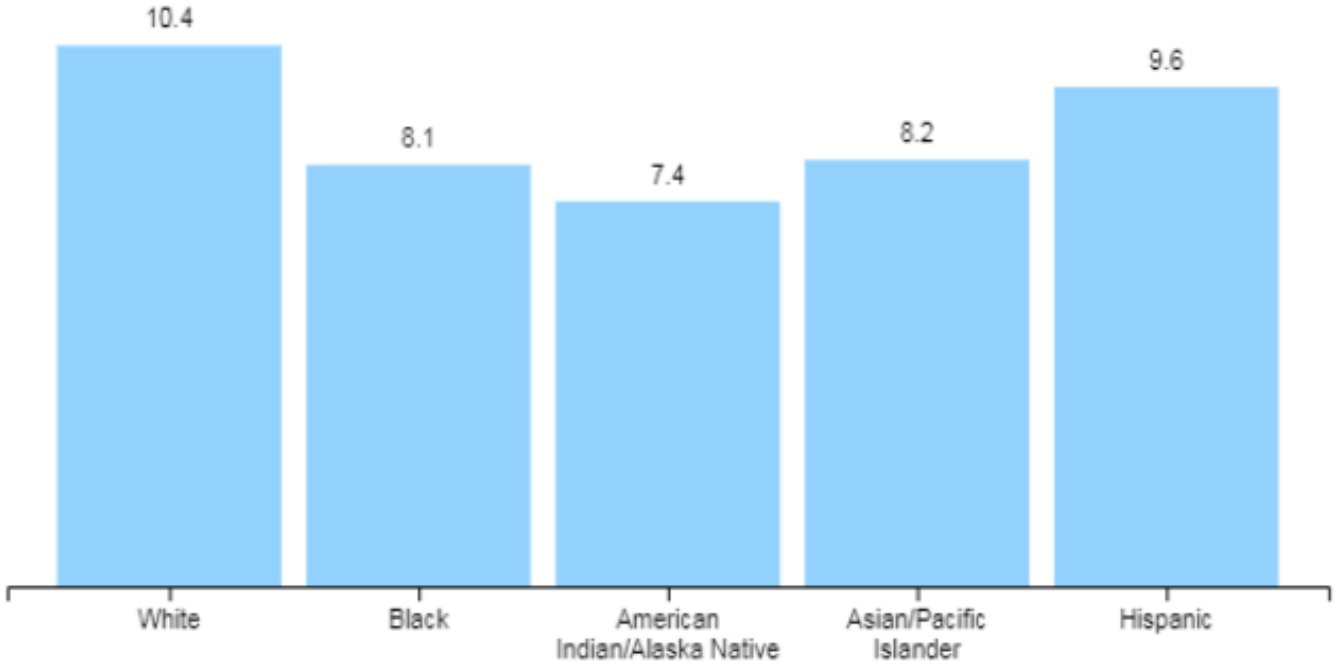
Rate of New Cancers by Race/Ethnicity, Female

Ovary, United States, 2017

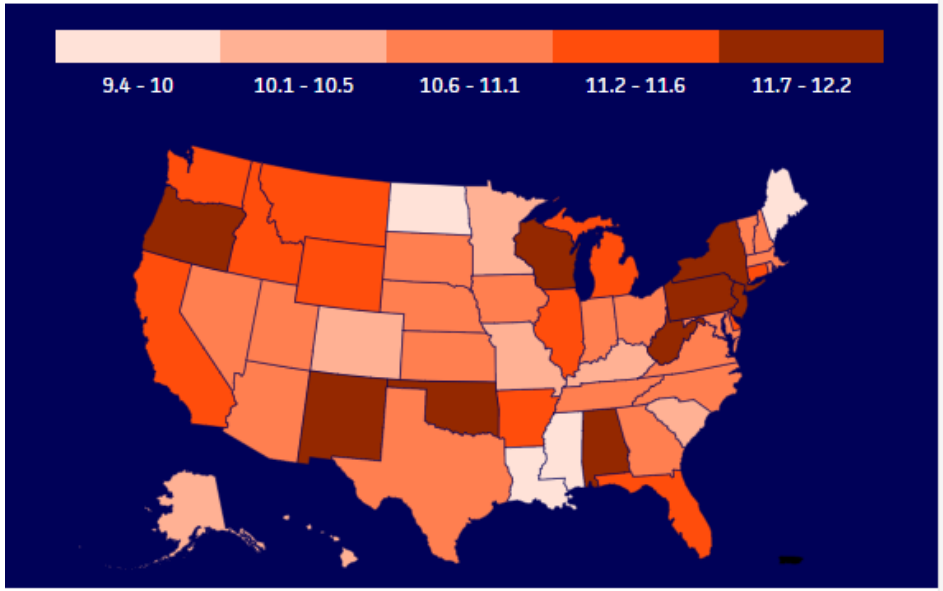


Rate per 100,000 women

Data source – U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2019 submission data (1999-2017): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz , June 2020.

Incidence rates, 2012-2016

Ovary, by state

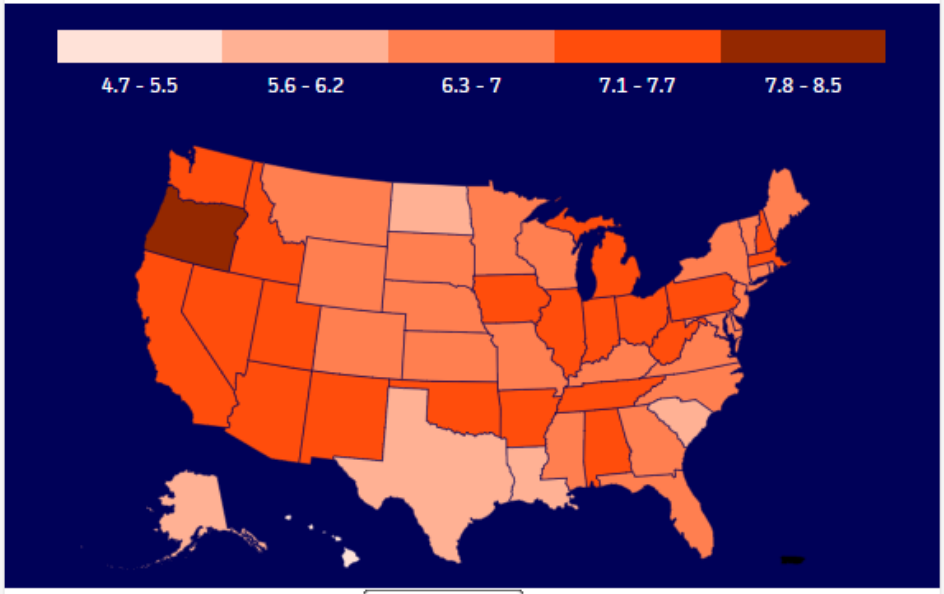


Average annual rate per 100,000, age adjusted to the 2000 US standard population.

Data sources: North American Association of Central Cancer Registries (NAACCR), 2019

Death rates, 2013-2017

Ovary, by state



Average annual rate per 100,000, age adjusted to the 2000 US standard population. Rates for PR are for 2011-2015.

Data sources: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2019

Rhode Island Data

Figure 1.1: Gynecologic Malignant Cancers, By Site, United States, 2015[1,2]

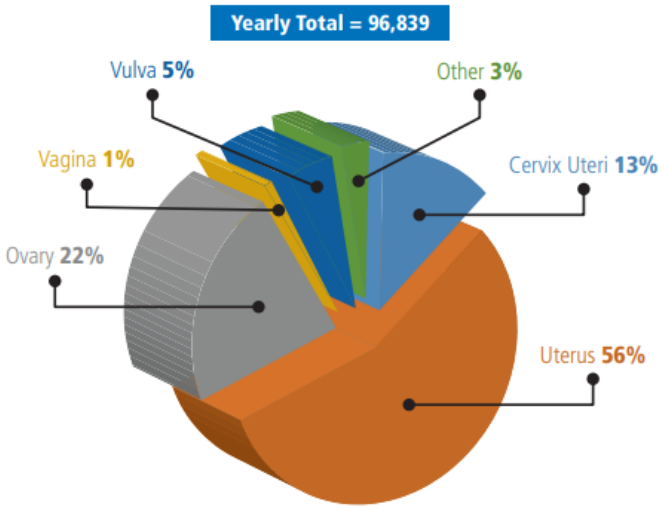


Figure 1.2: Gynecologic Malignant Cancers, By Site, Northeastern Region, 2015[1,2]

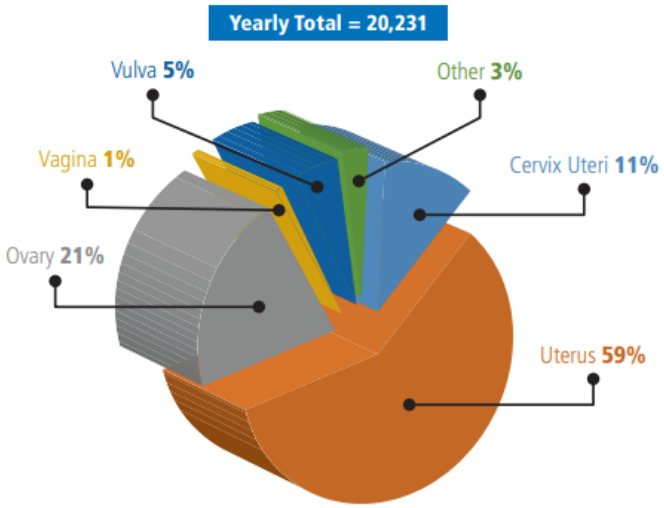
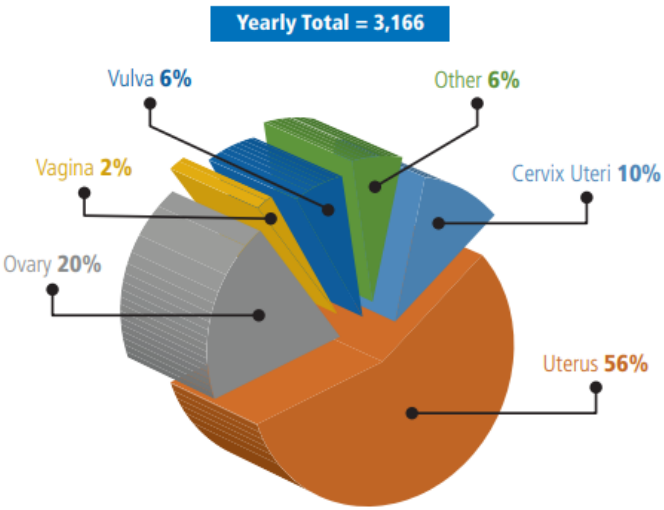


Figure 1.3: Gynecologic Malignant Cancers, By Site, Rhode Island, 2015[3]

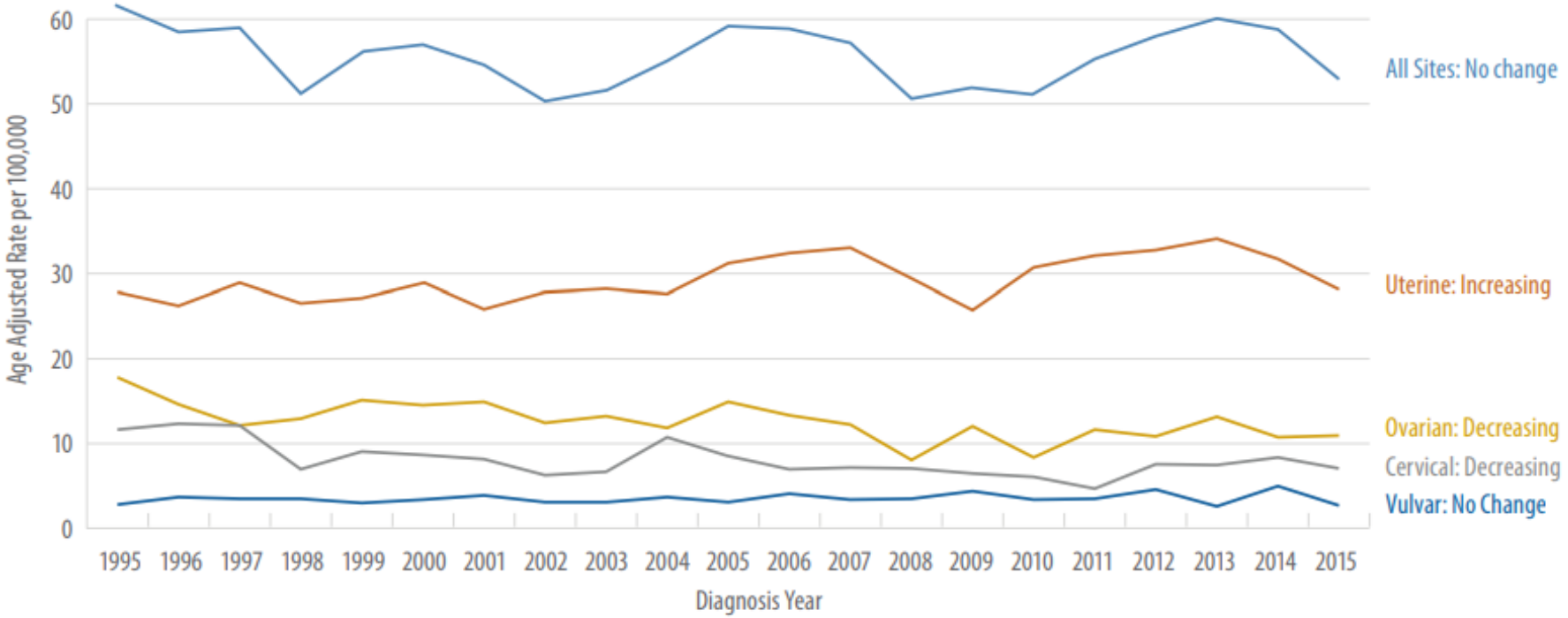


DATA SOURCES

Data for the US and northeast region (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, and New Jersey) were provided by the National Program of Cancer Registries (NPCR) and Surveillance, Epidemiology, and End Results Program (SEER) Incidence—US Cancer Statistics Public Use Research Database, November 2017 submission (2001-2015).[1,2] Rhode Island data are provided by the Rhode Island Cancer Registry.[3] All analyses were conducted using SEER*Stat Software version 8.3.5.[4]

Rhode Island Data

Figure 2: Trend of Gynecologic Malignant Cancer Incidence, By Site, Rhode Island 1995-2015

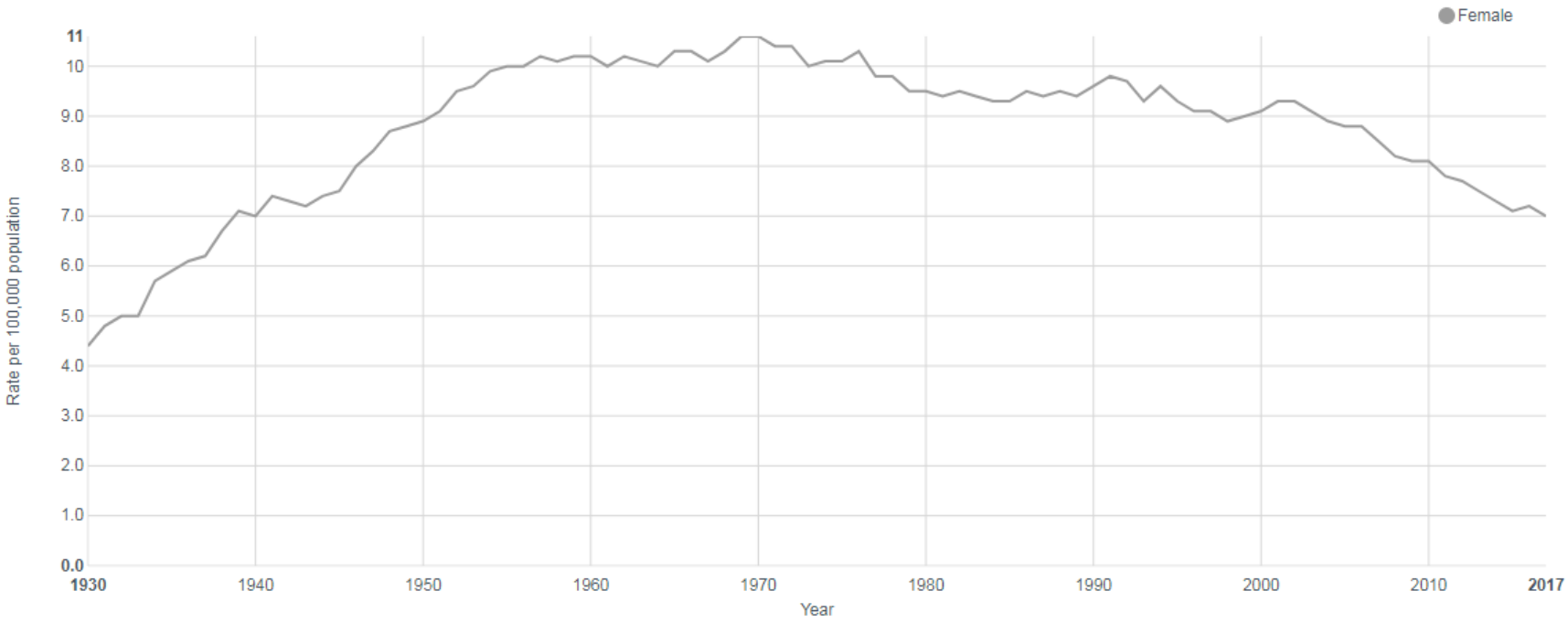


DATA SOURCES

Rhode Island data provided by the Rhode Island Cancer Registry.[3] All analyses were conducted using SEER*Stat Software version 8.3.5.[4]

Trends in death rates, 1930-2017

Ovary, by sex

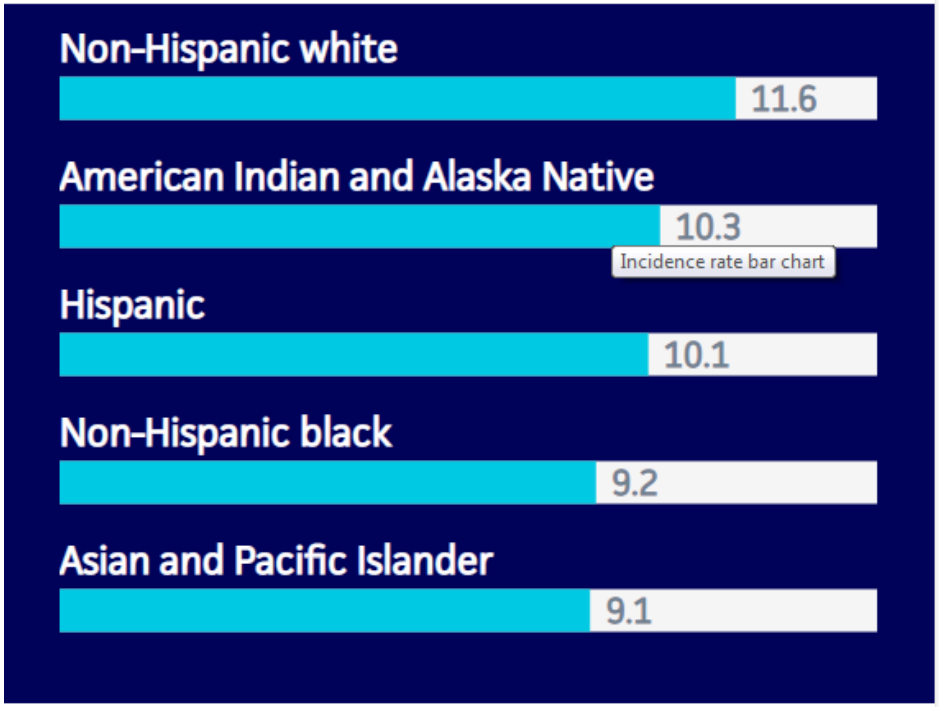


Per 100,000, age adjusted to the 2000 US standard population.

Data sources: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2019

Incidence rates, 2012-2016

Ovary, by race and ethnicity

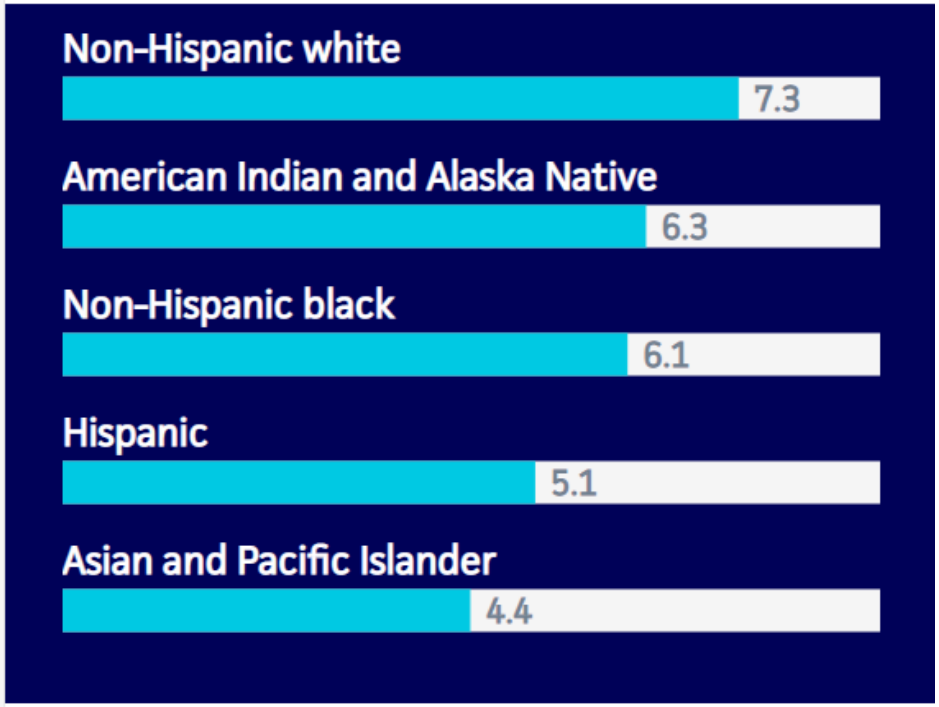


Average annual rate per 100,000, age adjusted to the 2000 US standard population.

Data sources: North American Association of Central Cancer Registries (NAACCR), 2019

Death rates, 2013-2017

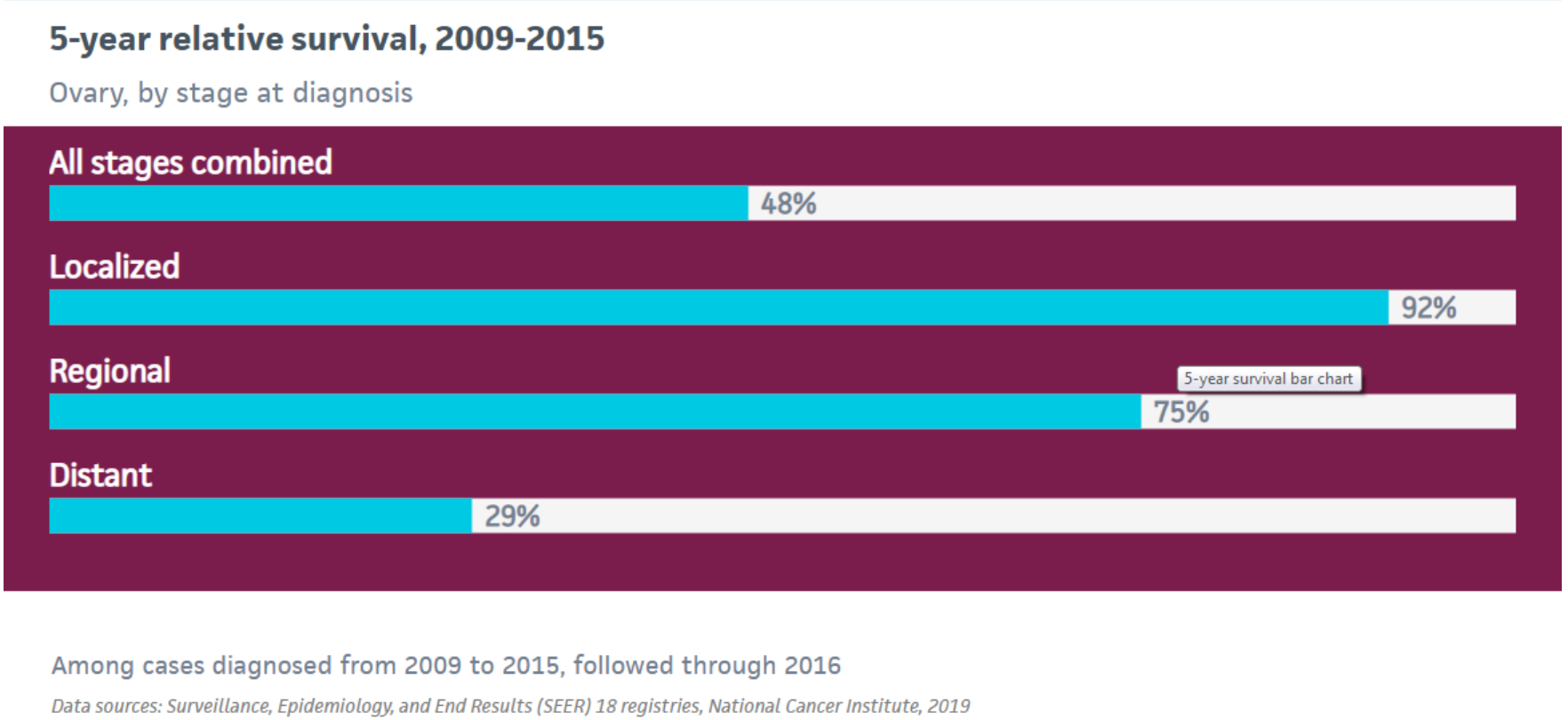
Ovary, by race and ethnicity



Average annual rate per 100,000, age adjusted to the 2000 US standard population. Rates for PR are for 2011-2015.

Data sources: National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, 2019

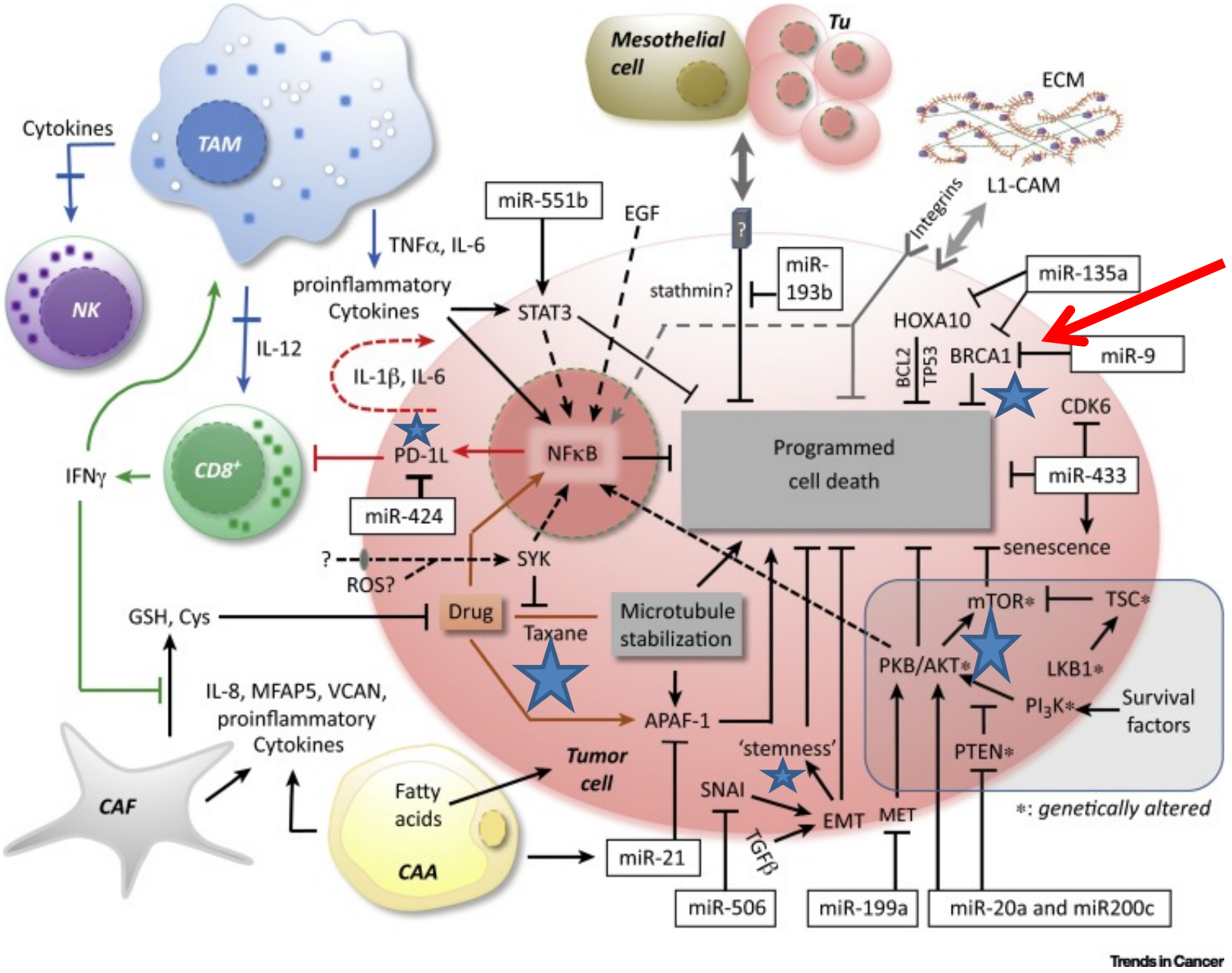
Risk of Death by Stage



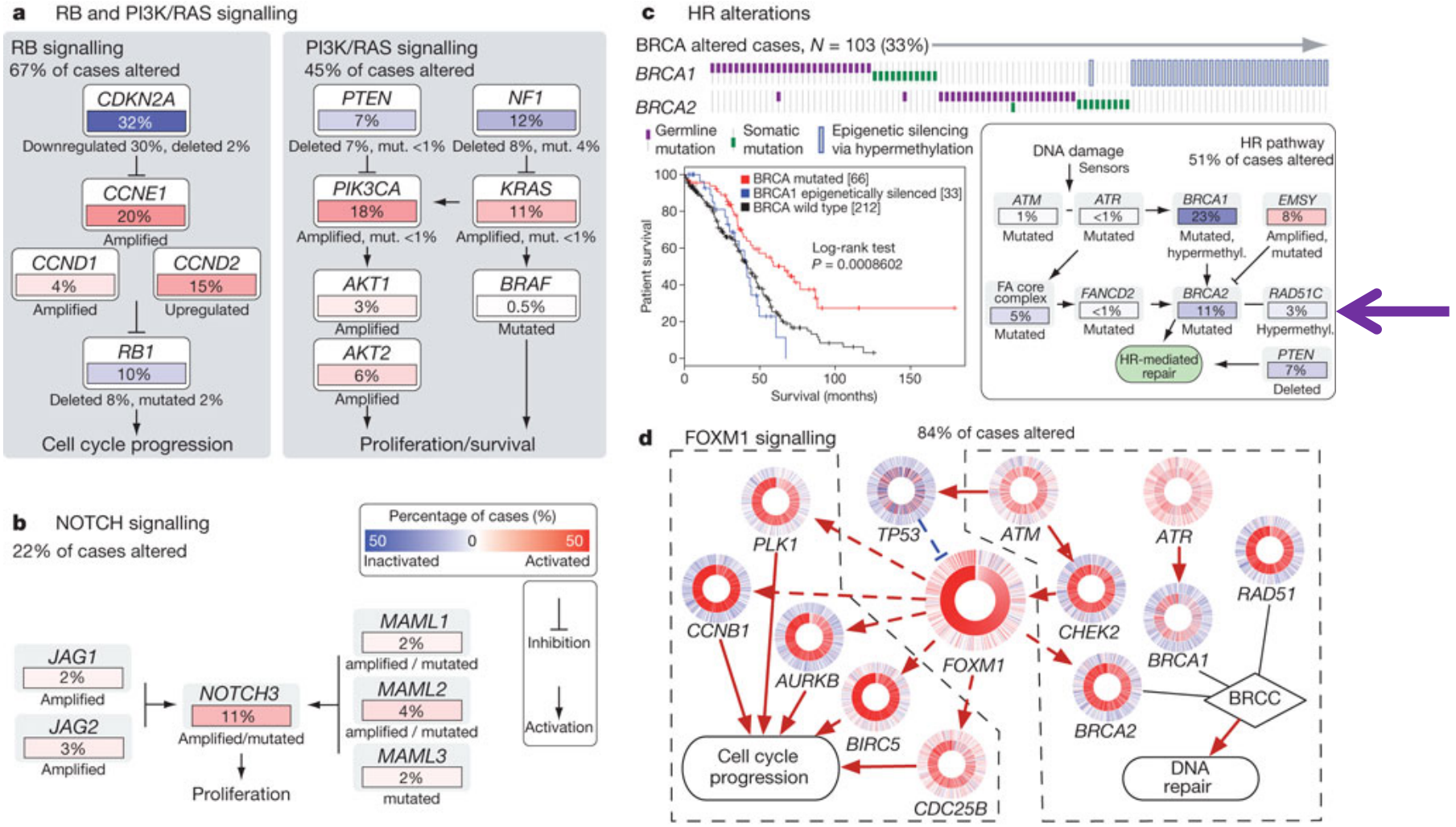
What Have We Learned About Ovarian Cancer?

The Cancer Genome Atlas Project

Ovarian Cancer Pathways



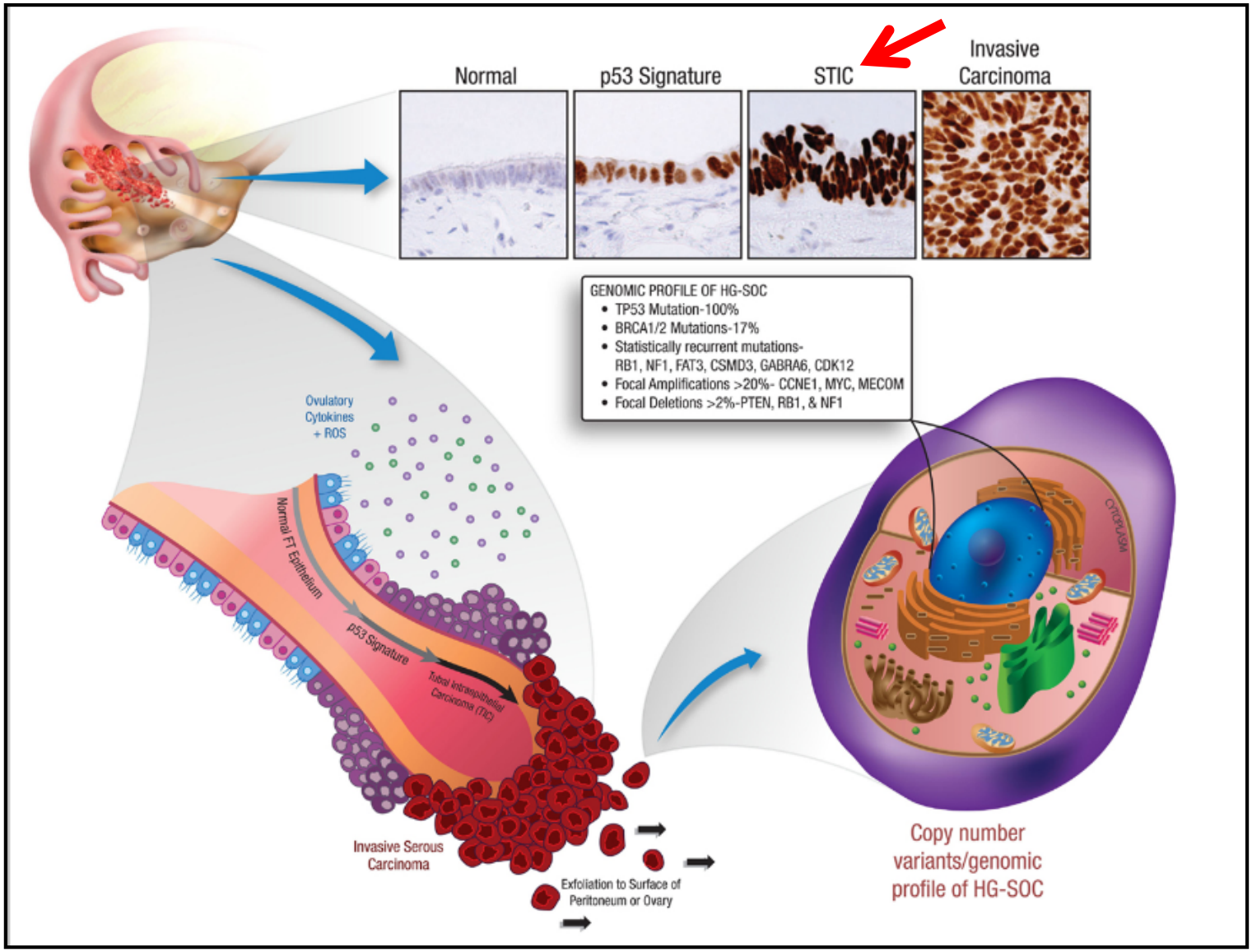
Altered pathways in HGS-OvCa.

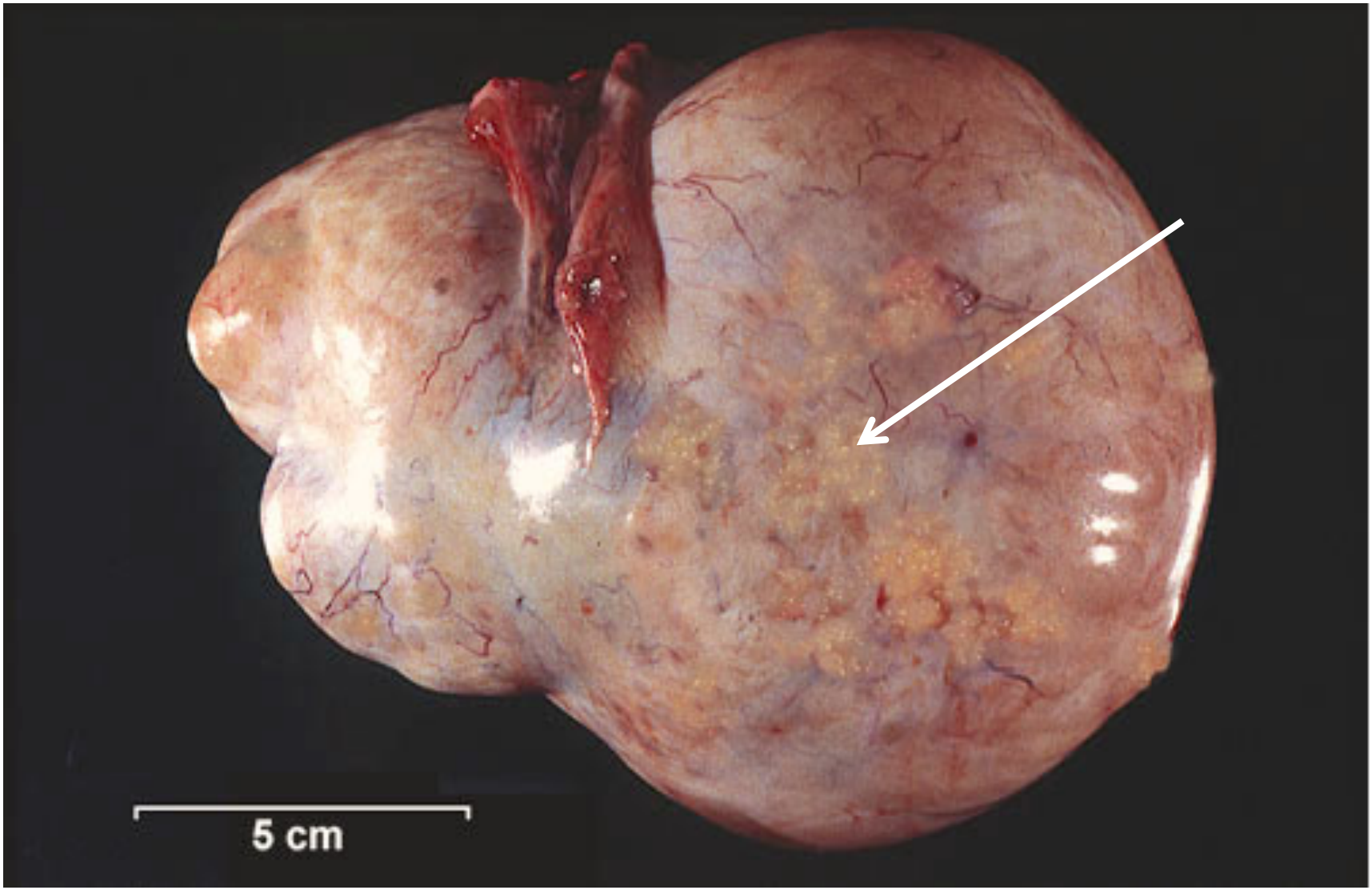


D Bell *et al. Nature* **474**, 609-615 (2011) doi:10.1038/nature10166

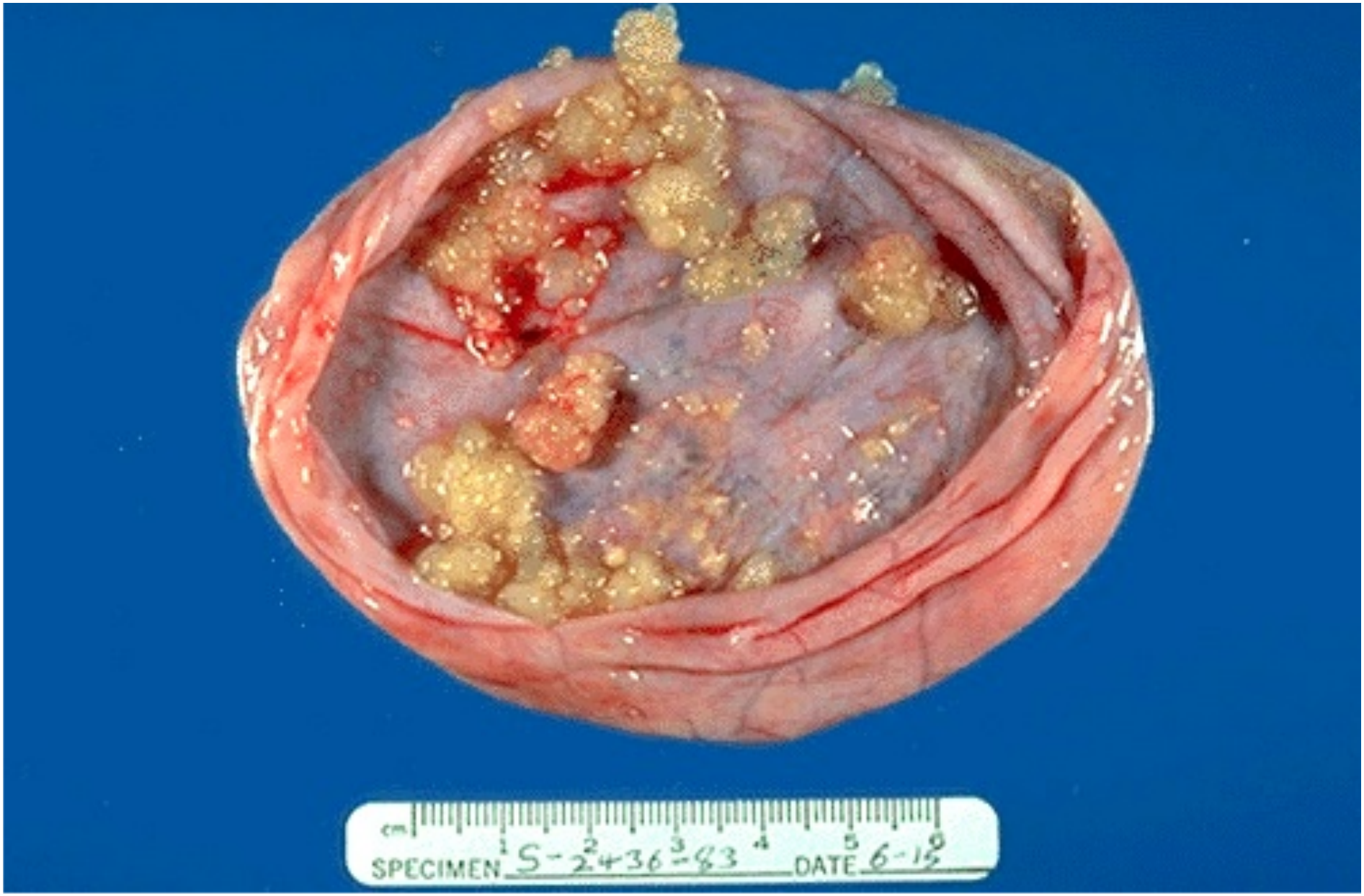
nature

Ovarian Cancer may start in the Fallopian Tube





https://webpath.med.utah.edu/



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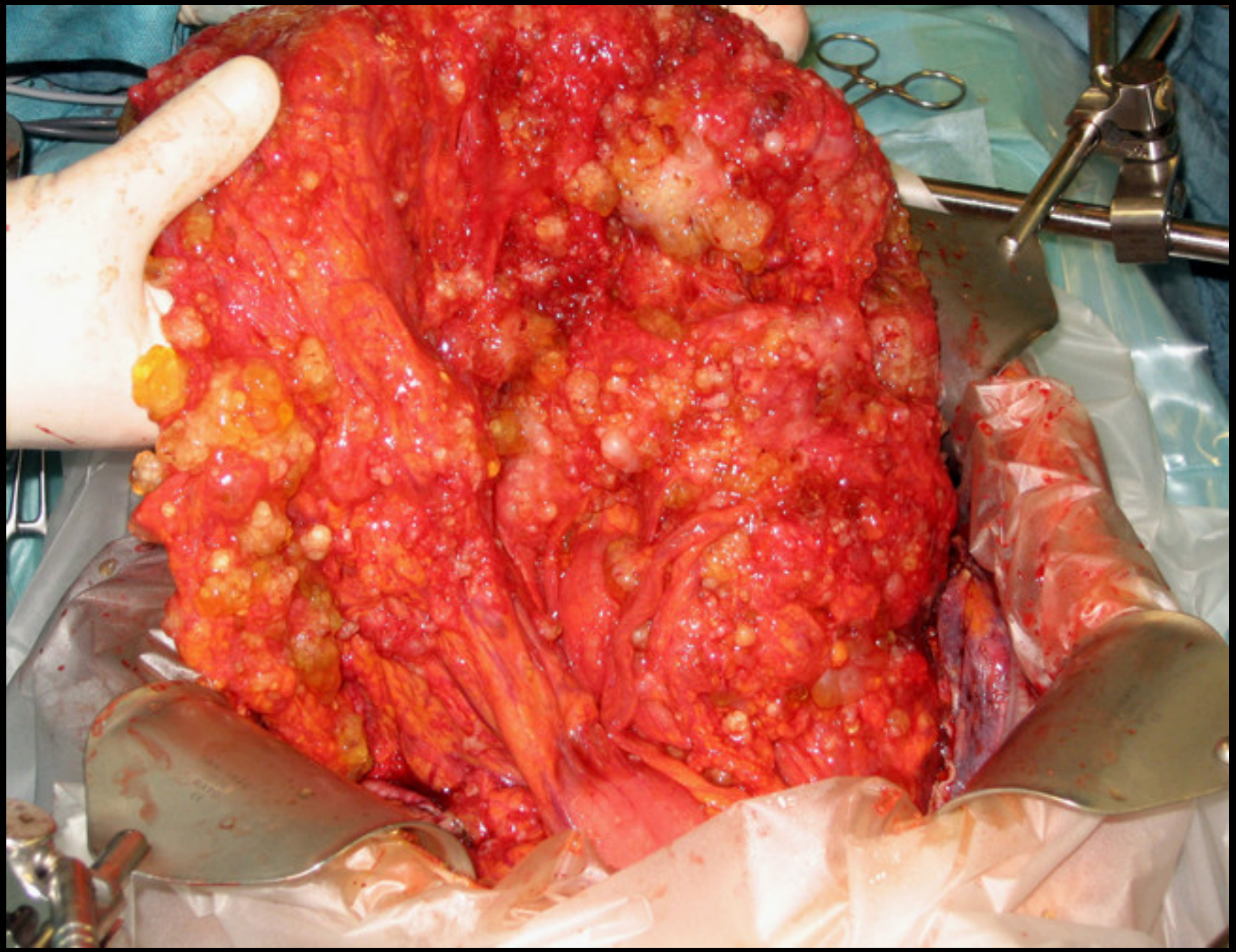


RISK FACTORS

RISK FACTORS

Many factors can increase or decrease a woman's risk of developing ovarian cancer.

INCREASES RISK

FAMILY HISTORY OF BREAST, OVARIAN OR COLON CANCER

GENETIC MUTATIONS, LIKE BRCA

POST-MENOPAUSAL

INCREASED AGE

DECREASES RISK

PREGNANCY

BREASTFEEDING

USE OF ORAL CONTRACEPTIVES

Oral Contraceptives

- Collaborative Group on Epidemiological Studies of Ovarian Cancer, Lancet 2008; 371: 303–14
- OCPs used for over 50 years, 100 million users
- Meta-Analysis
- 23255 cases and 32717 controls, 45 studies in 21 countries
- Primary objective—risk of developing ovarian cancer
- Looked at overall incidence as well as 10 yr. intervals

Oral Contraceptives and Risk of Ovarian Cancer

A. Reduction persisted up to 30 years after use

% reduction

1-10=29%

11-20=19%

21-30=15%

B. 10 years OCP use translates into

1. Decrease in incidence from 1.2 to 0.8 per 100
2. Decrease in mortality from 0.7 to 0.5 per 100

C. 5000 women-years of use avoids 2 ovarian cancer cases and 1 death

Hypothetically, if 10 million women in US use for 1 year, avoid 2000 cases and 1000 deaths

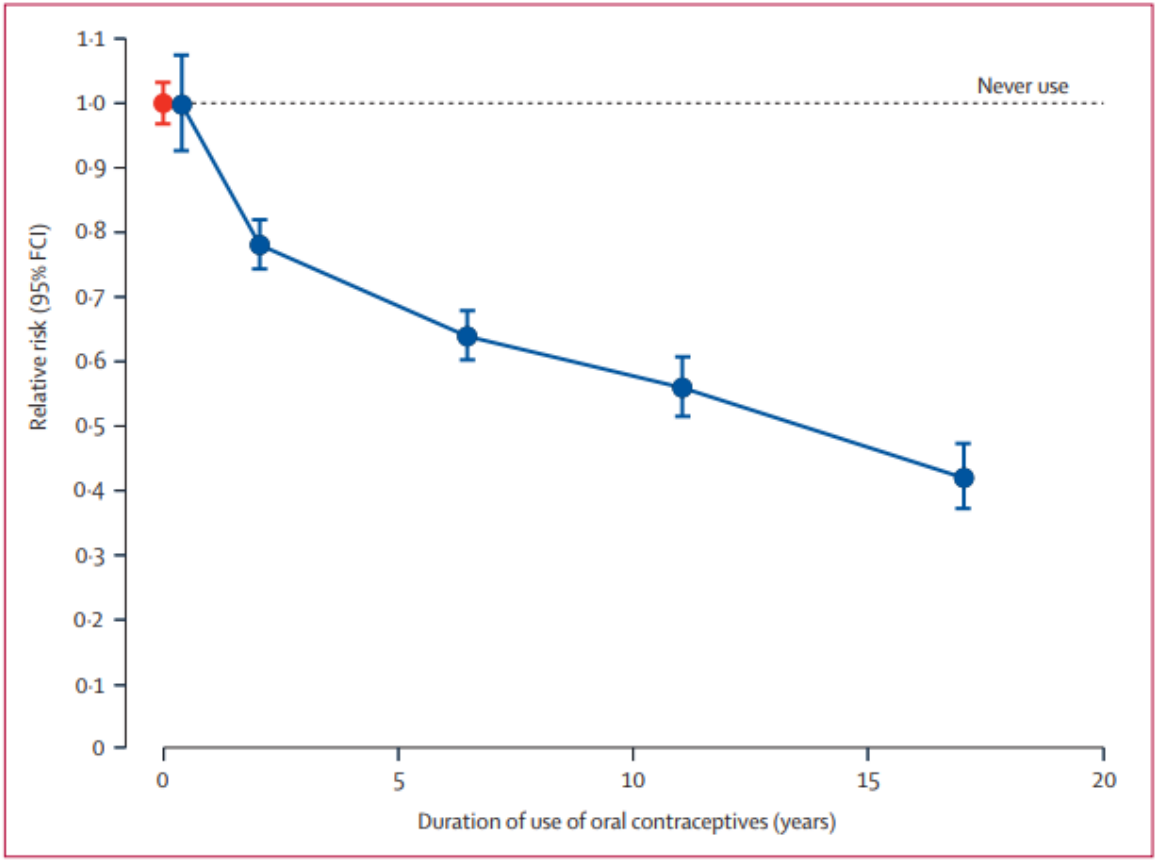


Figure 2: **Relative risk* of ovarian cancer by duration of use of oral contraceptives**
*Stratified by study, age, parity, and hysterectomy.

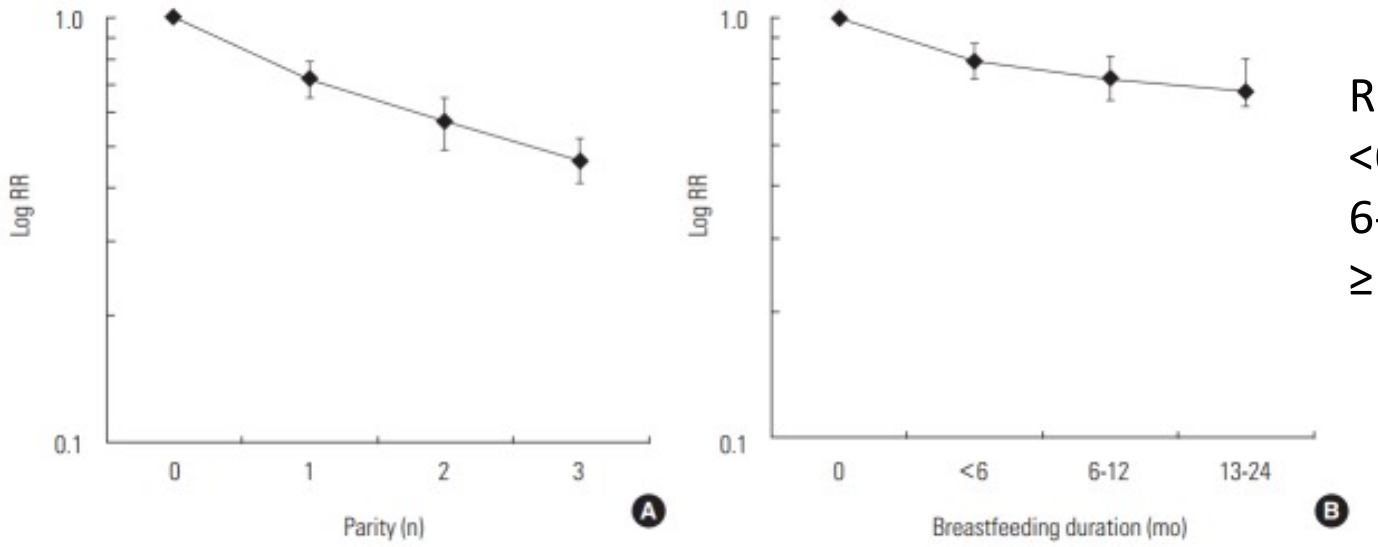
Lancet 2008; 371: 303–14

Pregnancy/Lactation and Ovarian Cancer Risk

- Sung, ,et al, J Prev Med Public Health. 2016 Nov; 49(6): 349–366.
- Meta-Analysis of 32 studies
- Relative risk based on parity and lactation length
- Parity of 1, 2 or >/= 3
- Lactation of <6 months, 6-12 months and >/= 13 months

Figure. 2.

RRs
1=0.72
2=0.57
≥3=0.46



RRs
<6=0.79
6-12=0.72
≥13=0.67

Decreasing epithelial ovarian cancer (EOC) risk with increasing parity and breastfeeding duration. (A) Decreasing EOC risk with increasing parity[1,2]. (B) Decreasing EOC risk with increasing breastfeeding duration[1,2]. [1]The relative risks (RRs) in each category were estimated using a random effect model. [2]We used summary RRs from 32 studies for parity and 15 studies for breastfeeding (shown in Table 1).

**If ≥ 2 parity and <6 months, RR=0.5

Sung, ,et al, J Prev Med Public Health. 2016 Nov; 49(6): 349–366.

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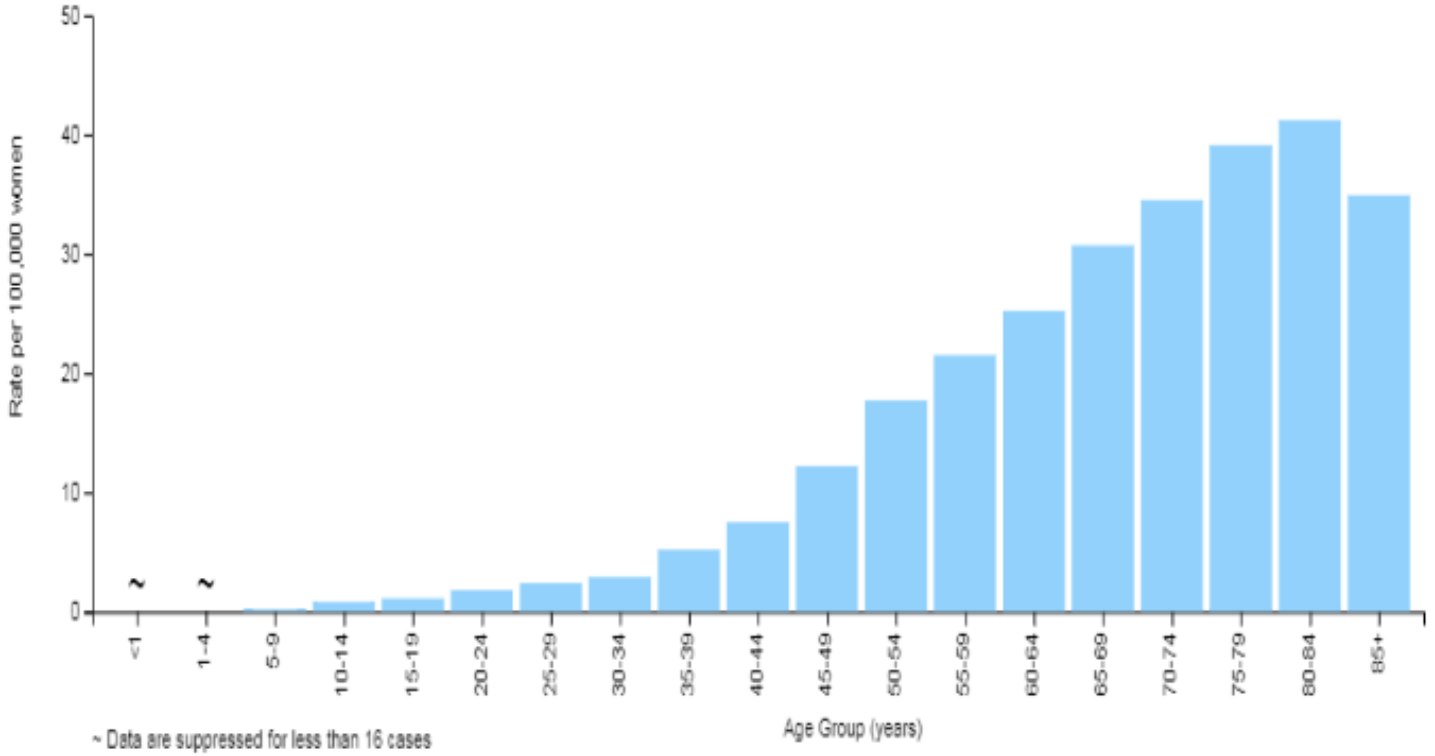
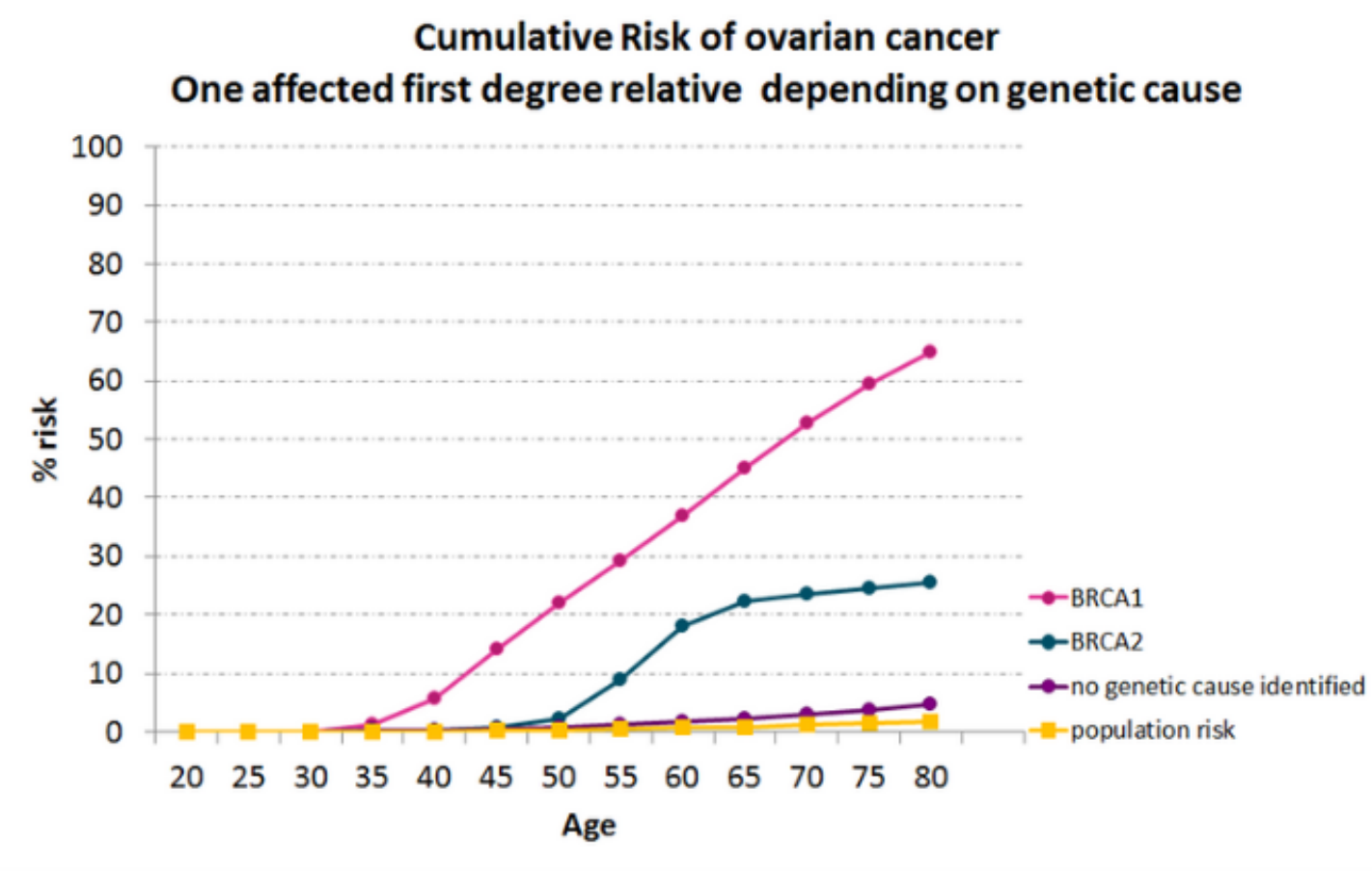
Rate of New Cancers by Age Group (years), All Races, Female

Ovary, United States, 2017



Data source – U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2019 submission data (1999-2017): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz , June 2020.

Relative Risk for BRCA



GENETICS

Linkage of Early-Onset Familial Breast Cancer to Chromosome 17q21

JEFF M. HALL, MING K. LEE, BETH NEWMAN, JAN E. MORROW, LEE A. ANDERSON, BING HUEY, MARY-CLAIRE KING

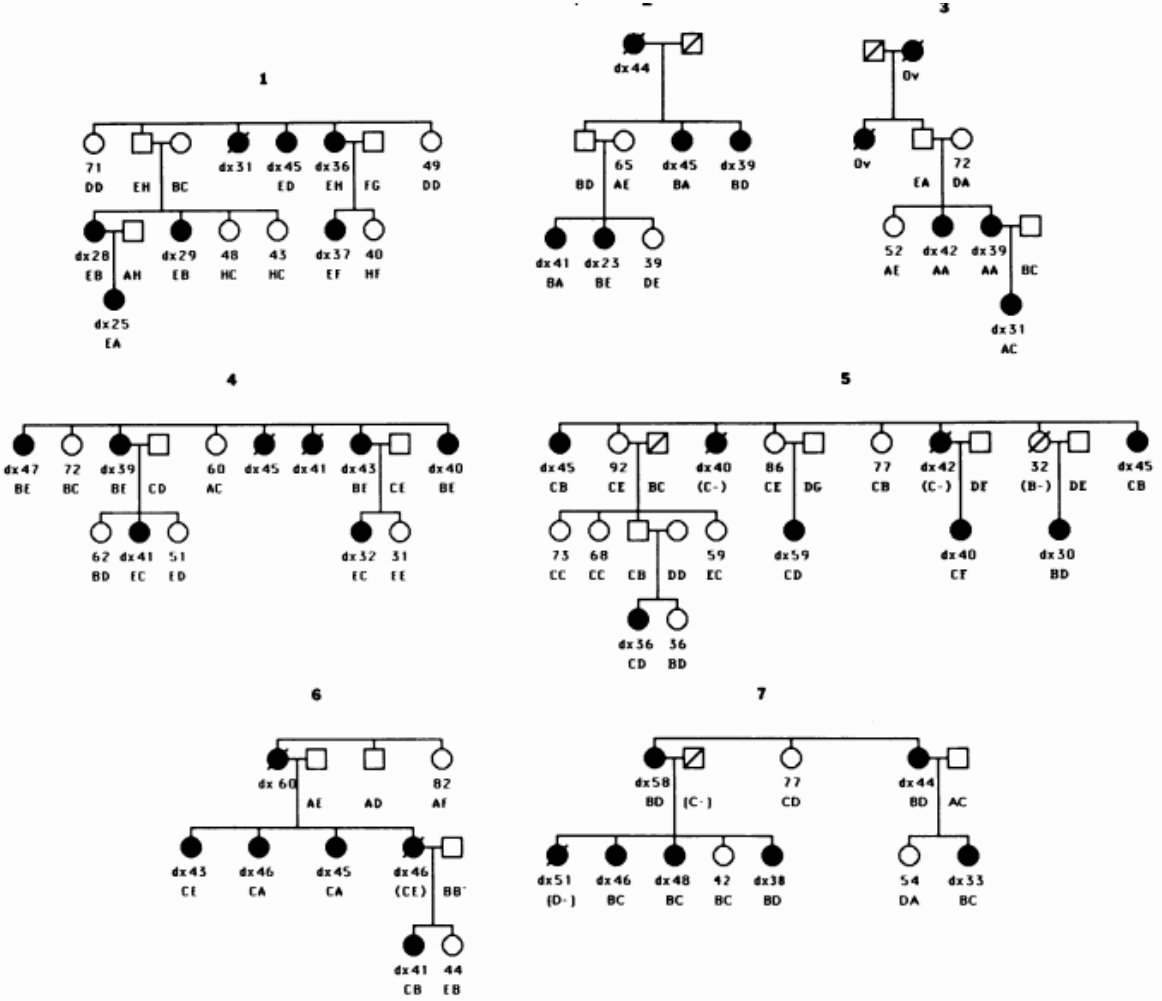


Fig. 1. Breast cancer families 1 to 7. Solid circles, females with breast cancer; open circles, females without breast cancer; open squares, males without breast cancer. The age given for each woman is age at (first) breast cancer diagnosis (dx) if affected, age at death if deceased (deceased individuals are represented by diagonal lines through symbols), or age at most recent interview if alive without breast cancer. Alleles of *D17S74* are shown for all families and are lettered sequentially within each family from largest to smallest fragment size. Alleles in parentheses are based on reconstructed genotypes.

The search for the familial breast/ovarian cancer gene

DONALD M. BLACK AND EllEN SOLOMON

Trends in Genetics JANUARY 1993 VOL. 9 NO, 1

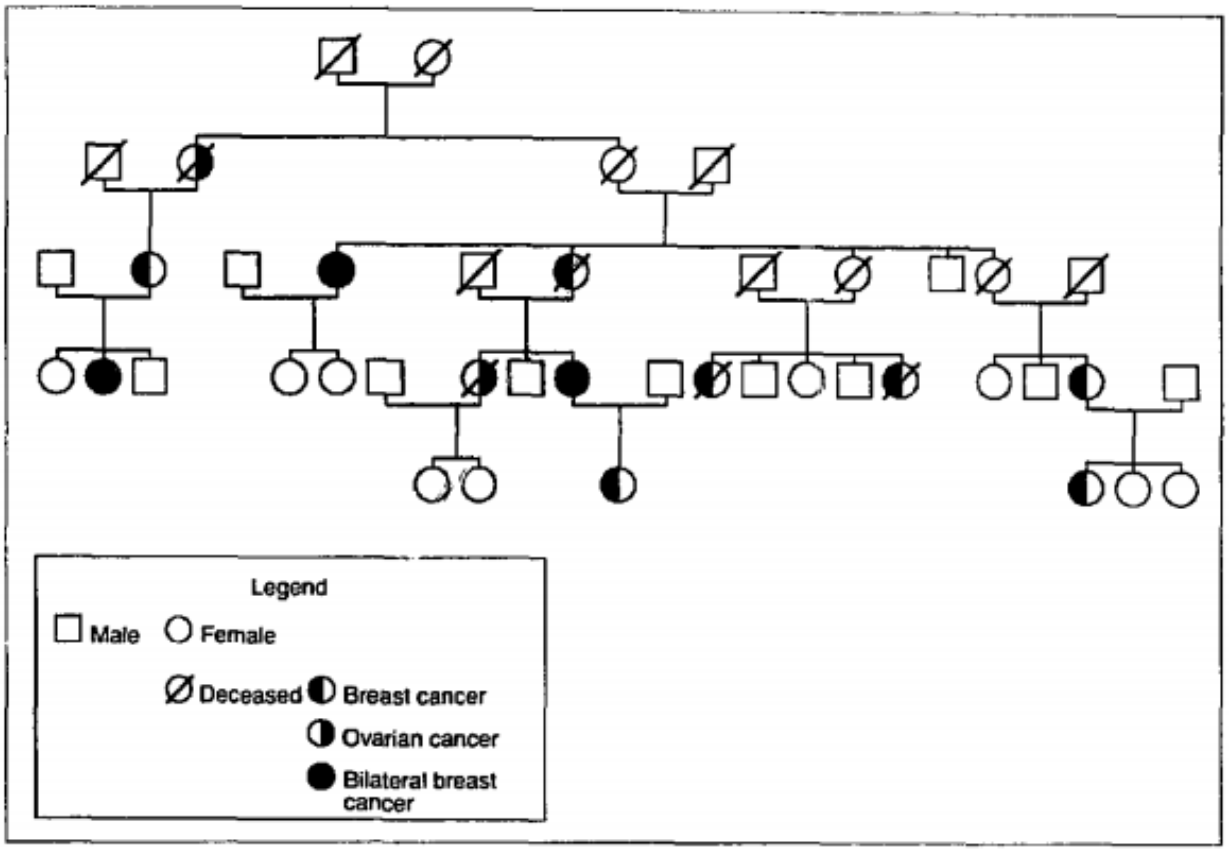
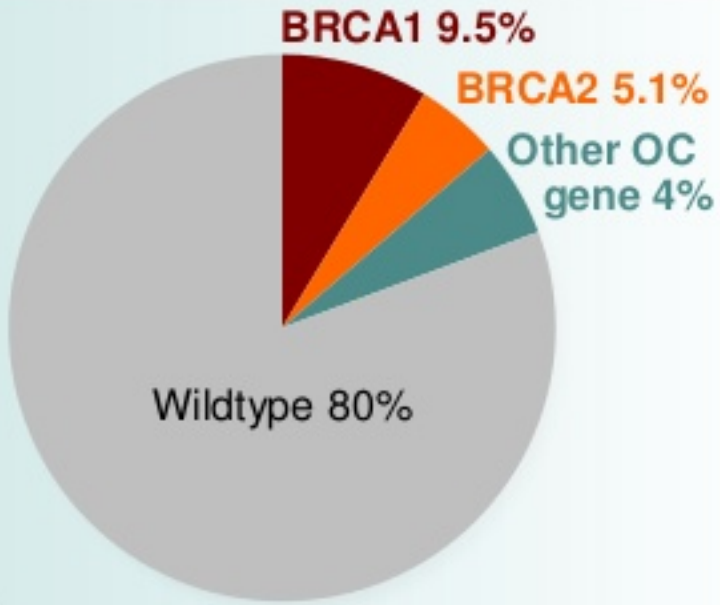


FIG **1**

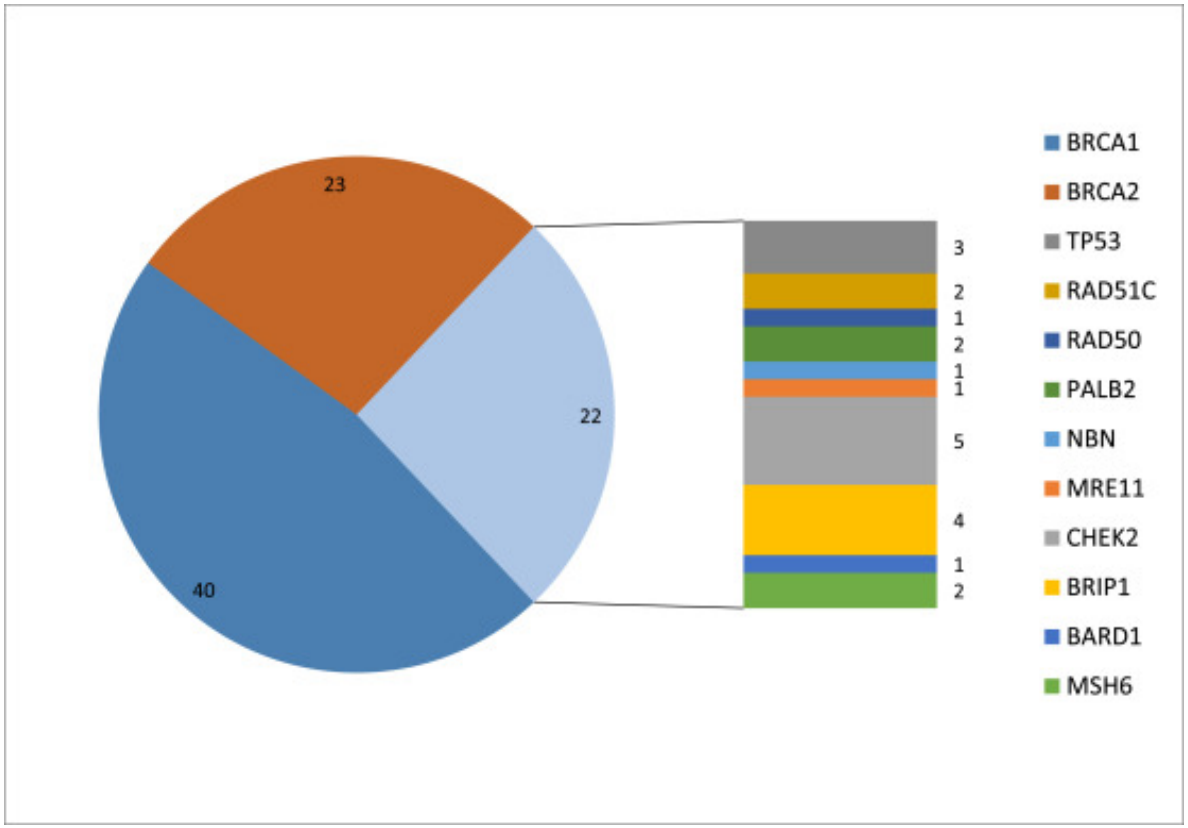
A large British breast/ovarian cancer pedigree that was collected by the ICRF[36]. In this family the mean age of diagnosis of breast or ovarian cancer is 42 years.

Hereditary Ovarian Carcinoma

- 20% of OC caused by inherited risk
- BRCA1 and BRCA2 are the most important genes
- 9 other genes cause 4% of cases, ¼ of mutations occur in non-BRCA genes
- 1 of 5 ovarian cancers occur in women with identifiable risk and could be prevented!
- If we identified all genetic risk of OC, we could save many lives



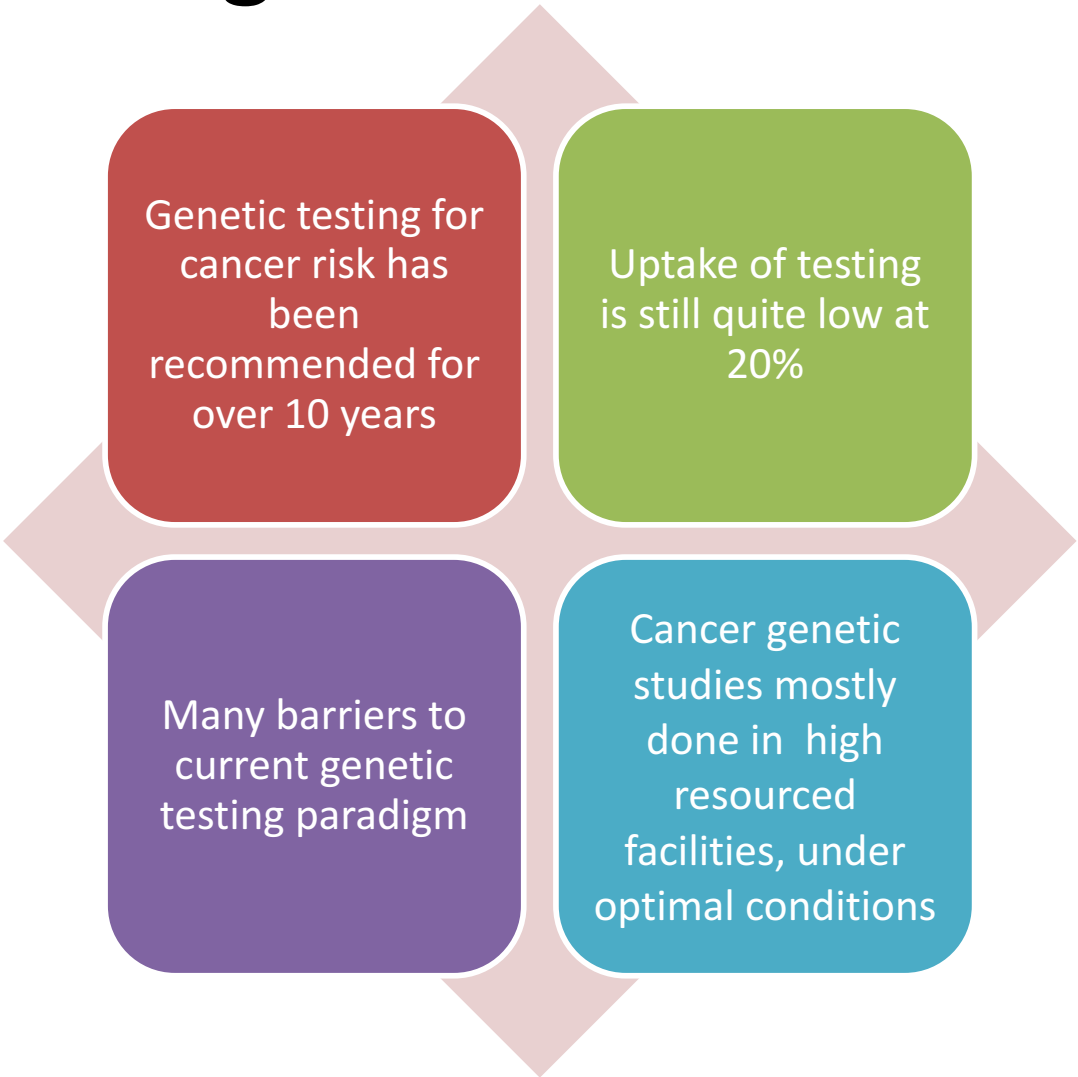
Germline mutations in 85/360 unselected women with ovarian, fallopian tube or peritoneal cancer.



Walsh et al. PNAS 2011

Cancer Genetic Testing is Underutilized

- 20% of ovarian carcinoma is hereditary
- No effective early detection
- Identifying genetic risk is critical and allows offer of surgical prevention to high-risk women



Barriers to Genetic Testing

Provider and patient

- Inadequate recognition and referral of eligible patients by physicians
- Lack of availability of genetic counselors
- Lack of knowledge
- Inconvenience
- Cost

Genetic Assessment for Breast, Ovarian, and Pancreatic

- Testing indicated
  - Blood relative with known mutation
  - Meet criteria but previously tested with limited panel
  - Personal history of cancer
    - Breast Cancer at ≤ 45 yrs
    - Breast Cancer 46-50 yrs with
      - Unknown or limited family history
      - Second breast cancer at any age
      - ≥ 1 close blood relative with breast, ovarian, pancreatic or prostate cancer at any age

Genetic Assessment for Breast, Ovarian, and Pancreatic

- Testing indicated
  - Triple negative breast cancer at age ≤ 60
  - Breast Cancer any age
    - Ashkenazi Jewish ancestry
    - ≥ 1 close blood relative with breast cancer at age ≤ 50 yrs, or ovarian, pancreatic or high risk prostate cancer at any age
  - Epithelial Ovarian Cancer
  - ≥ 5% risk of BRCA 1/2 by probability models

National Comprehensive Cancer Network®

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

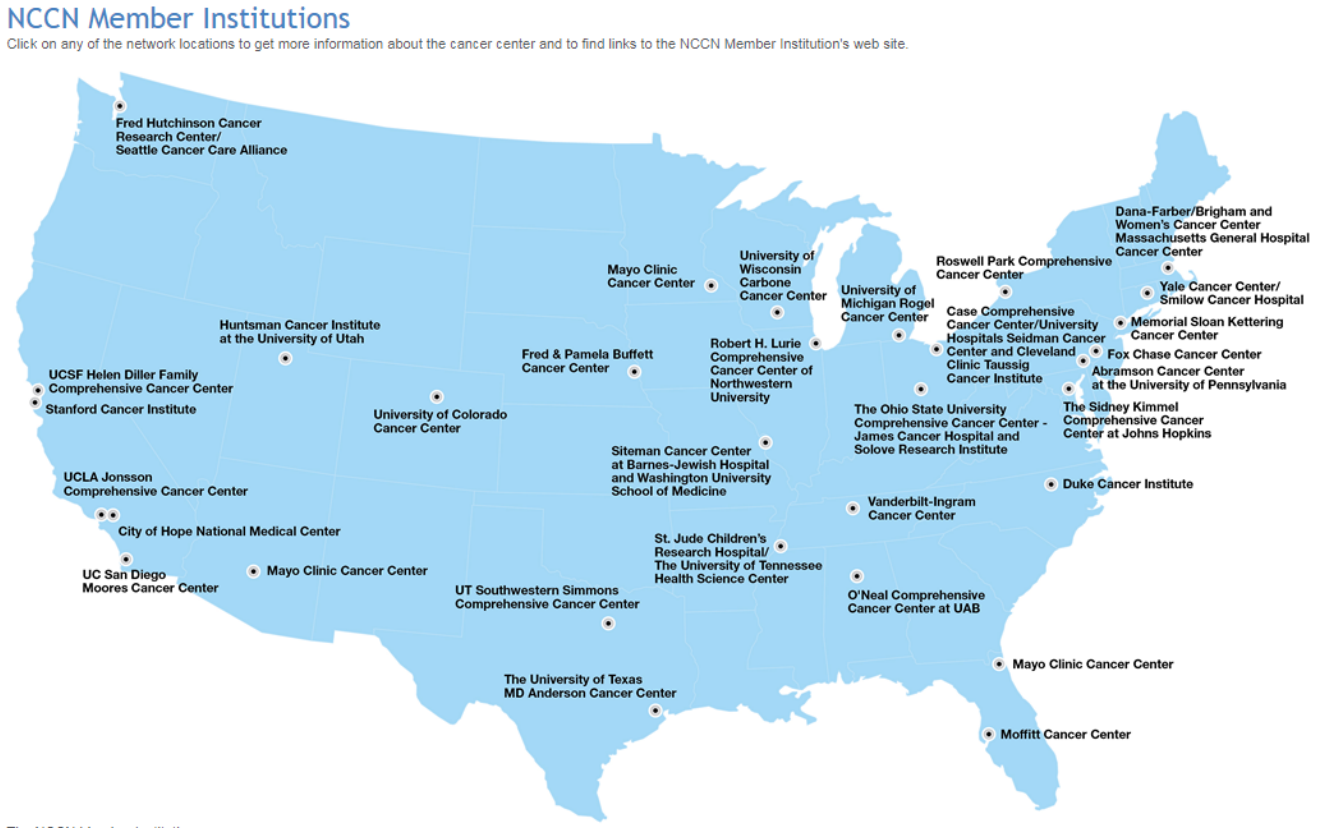
Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic

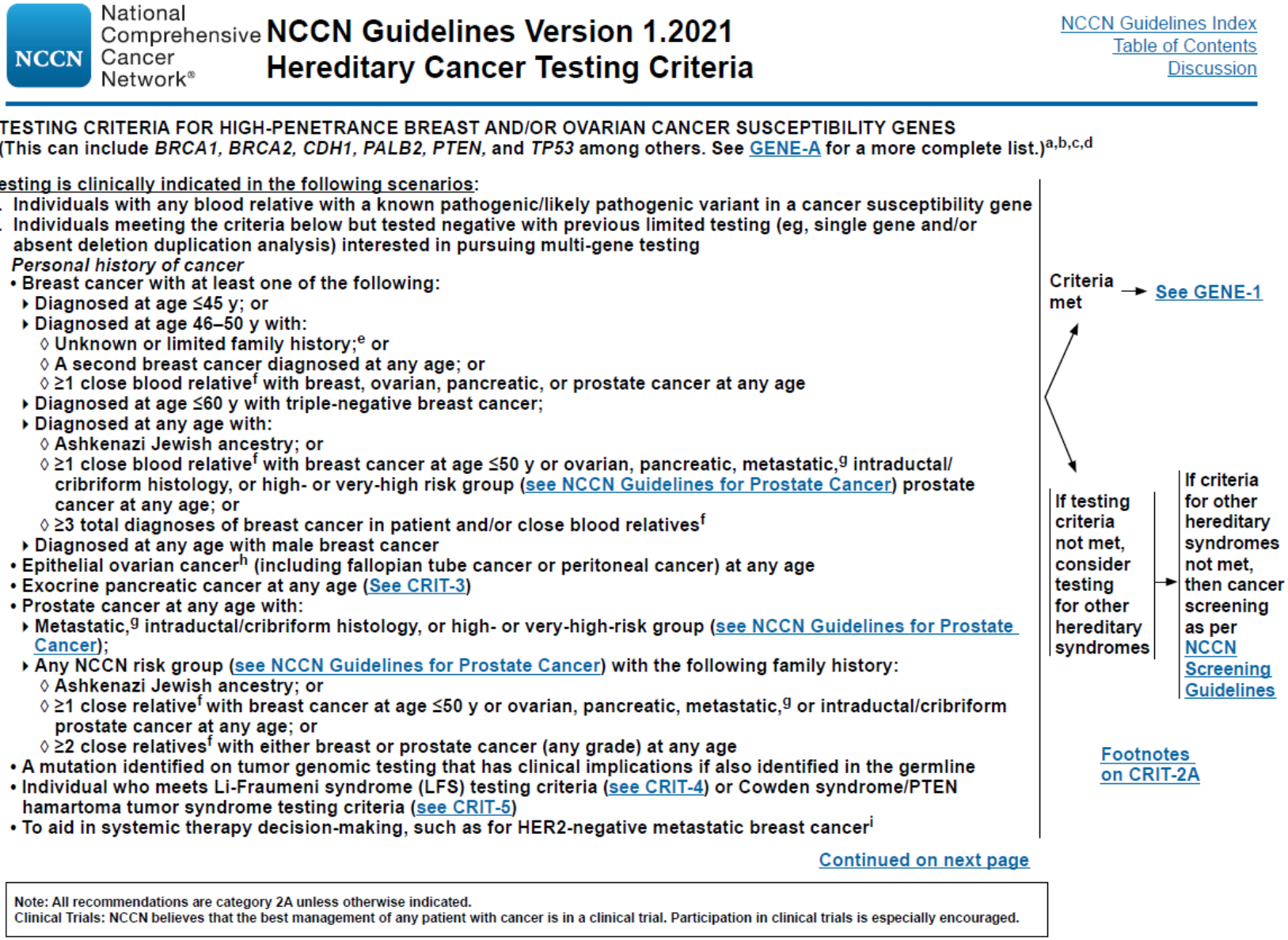
Version 1.2021 — September 8, 2020

NCCN.org

National Comprehensive Cancer Network - NCCN

- Clinical Practice Guidelines
- Updated September 8, 2020





TESTING CRITERIA FOR HIGH-PENETRANCE BREAST AND/OR OVARIAN CANCER SUSCEPTIBILITY GENES

(This can include *BRCA1, BRCA2, CDH1, PALB2, PTEN,* and *TP53* among others. See GENE-A for a more complete list.)[a,b,c,d]

Testing is clinically indicated in the following scenarios (continued):

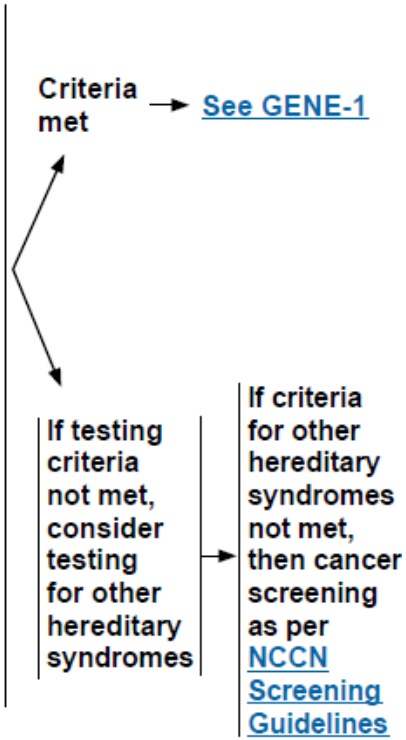
4. *Family history of cancer*
   - An affected or unaffected individual with a first- or second-degree blood relative meeting any of the criteria listed above (except individuals who meet criteria only for systemic therapy decision-making).[j]
     - If the affected relative has pancreatic cancer or prostate cancer (metastatic, intraductal/cribriform, or NCCN Guidelines for Prostate Cancer - High- or Very-High-Risk Group), only first-degree relatives should be offered testing unless indicated for other relatives based on additional family history.
   - An affected or unaffected individual who otherwise does not meet the criteria above but has a probability >5% of a *BRCA1/2* pathogenic variant based on prior probability models (eg, Tyrer-Cuzick, BRCAPro, CanRisk)[k]

Testing may be considered in the following scenarios (with appropriate pre-test education and access to post-test management):

1. Multiple primary breast cancers, first diagnosed between the ages of 50 and 65 y
2. An Ashkenazi Jewish individual[l]
3. An affected or unaffected individual who otherwise does not meet any of the above criteria but with a 2.5%–5% probability of *BRCA1/2* pathogenic variant based on prior probability models (eg, Tyrer-Cuzick, BRCAPro, CanRisk)[b]

There is a low probability (<2.5%) that testing will have findings of documented clinical utility in the following scenarios:

1. Women diagnosed with breast cancer at age >65 y, with no close relative[f] with breast, ovarian, pancreatic, or prostate cancer
2. Men diagnosed with localized prostate cancer with Gleason Score <7 and no close relative[f] with breast, ovarian, pancreatic, or prostate cancer



Footnotes on CRIT-2A

Note: All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

PREVENTION

Women ChoosIng Surgical Prevention

- Society Of Gynecologic Oncology Annual Meeting 2019
- Karen H. Lu, MD, Principal Investigator
- Preliminary data of RRSO versus ISDO
- Equal levels of reduction in cancer distress
- Higher levels of menopausal symptoms and regret in RRSO arm

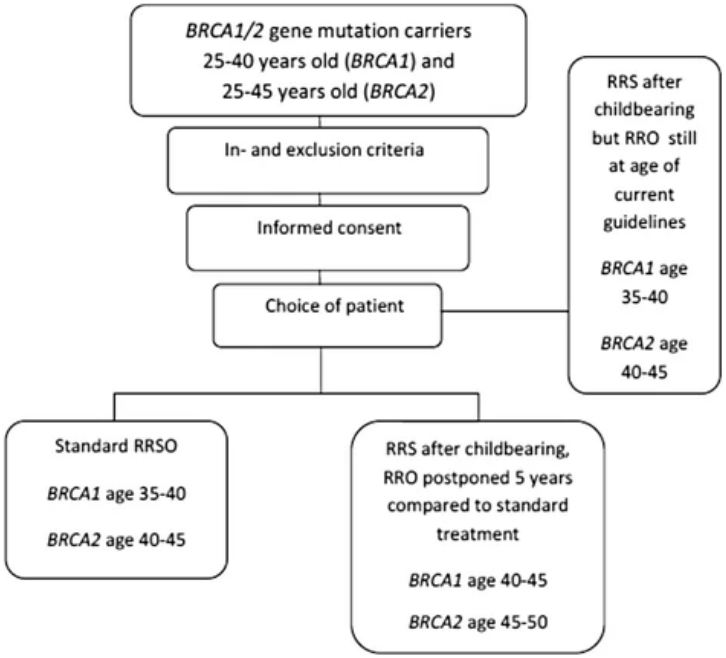
Early salpingectomy (TUbectomy) with delayed oophorectomy to improve quality of life as alternative for risk-reducing salpingo-oophorectomy in BRCA1/2 mutation carriers (TUBA study): a prospective non-randomised multicentre study

Marline G. Harmsen, Marieke Arts-de Jong, Nicoline Hoogerbrugge, Angela H. E. M. Maas, Judith B. Prins, Johan Bulten, Steven Teerenstra, Eddy M. M. Adang, Jurgen M. J. Piek, Helena C van Doorn, Marc van Beurden, Marian J. E. Mourits, Ronald P. Zweemer, Katja N. Gaarenstroom, Brigitte F. M. Slangen, M. Caroline Vos, Luc R. C. W. van Lonkhuijzen, Leon F. A. G. Massuger, Rosella P. M. G. Hermens & Joanne A. de Hullu

BMC Cancer volume 15, Article number: 593 (2015)

Fig. 1

From: Early salpingectomy (TUbectomy) with delayed oophorectomy to improve quality of life as alternative for risk-reducing salpingo-oophorectomy in *BRCA1/2* mutation carriers (TUBA study): a prospective non-randomised multicentre study

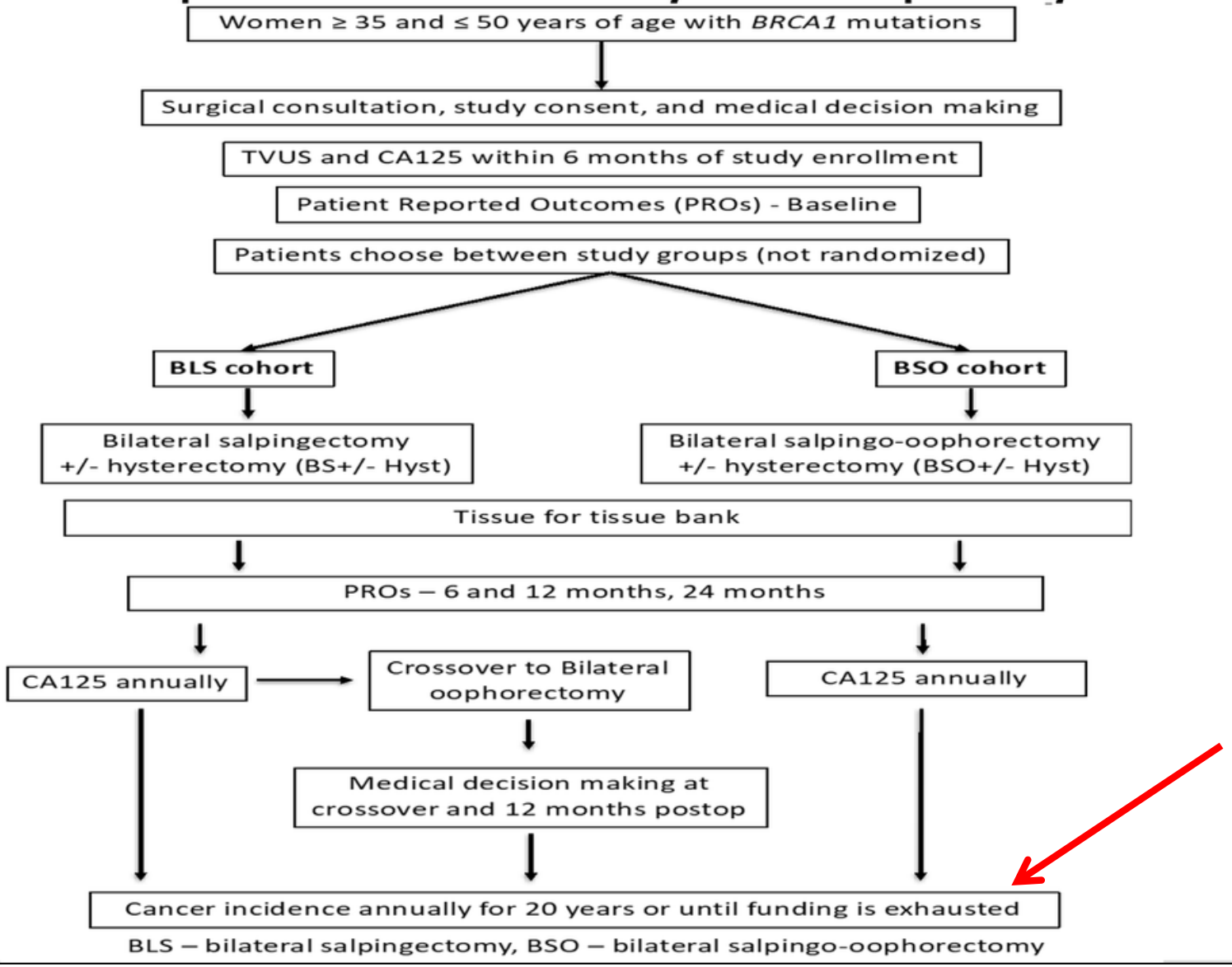


TUBA study design

NRG NCORP Cancer Control Trial – CC008

SOROCk - Non-randomized Prospective Non-inferiority Trial of Salpingectomy vs Salpingo-oophorectomy to Reduce Risk of Ov Ca Among BRCA1 Carriers

Sample Size = 2262 with study duration up to 16 years



BLS – bilateral salpingectomy, BSO – bilateral salpingo-oophorectomy

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Society of Gynecologic Oncology

ACOG COMMITTEE OPINION

Number 716 • September 2017
(Reaffirmed 2019)

(Replaces Committee Opinion Number 477, March 2011)

The Role of the Obstetrician–Gynecologist in the Early Detection of Epithelial Ovarian Cancer in Women at Average Risk

Recommendations and Conclusions

The American College of Obstetricians and Gynecologists and the Society of Gynecologic Oncology offer the following recommendations and conclusions:

- Currently, there is no strategy for early detection of ovarian cancer that reduces ovarian cancer mortality.
- The use of transvaginal ultrasonography and tumor markers (such as CA 125), alone or in combination, for the early detection of ovarian cancer in average-risk women have not been proved to reduce mortality, and harms exist from invasive diagnostic testing (eg, surgery) resulting from false-positive test results.
- Epithelial ovarian cancer is most commonly detected in an advanced stage (65% of cases are stage III or stage IV) when the cure rate is only 18%.
- Early stage (localized) ovarian cancer is associated with improved survival.
- Taking a detailed personal and family history for breast, gynecologic, and colon cancer facilitates categorizing women based on their risk (average risk or high risk) of developing epithelial ovarian cancer.
- The patient and her obstetrician–gynecologist should maintain an appropriate level of suspicion when potentially relevant signs and symptoms of ovarian cancer are present.

SCREENING

Qualities of an Effective Screening Test

The test for the disease must:

- be capable of detecting a high proportion of disease in its preclinical state
- be safe to administer
- be reasonable in cost
- lead to demonstrated improved health outcomes
- be widely available, as must the interventions that follow a positive result

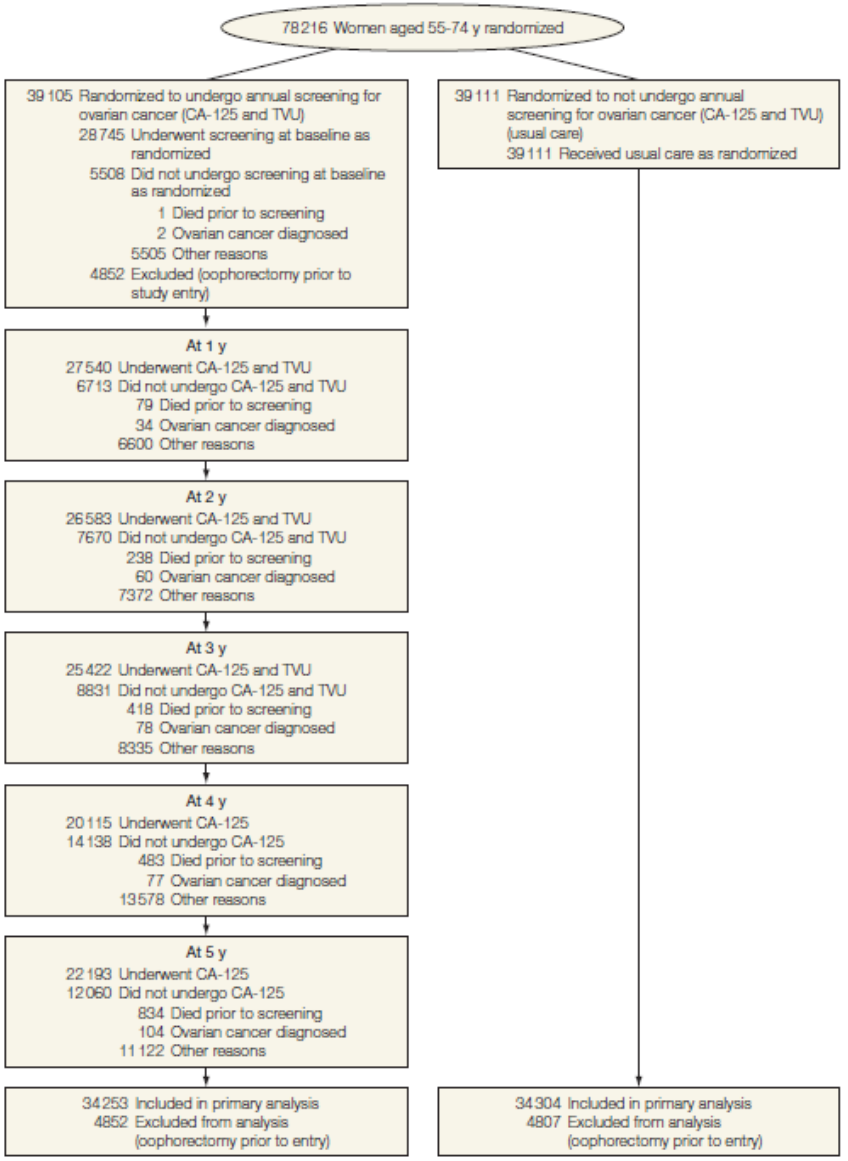
Cheryl Herman, MD Virtual Mentor. 2006;8(1):34-37. doi: 10.1001/virtualmentor.2006.8.1.cprl1-0601.

Effect of Screening on Ovarian Cancer Mortality

The Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Randomized Controlled Trial

JAMA, June 8, 2011—Vol 305, No. 22

Figure 1. Flow of Patients Through the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial

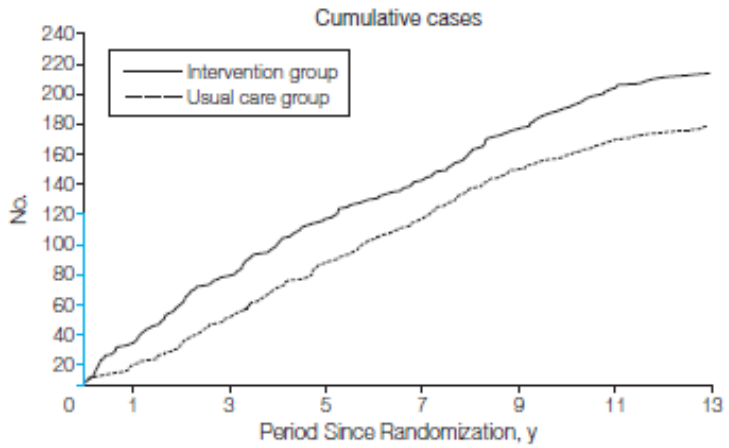


CA-125 indicates cancer antigen 125; TVU, transvaginal ultrasound.

1. Annual Ca-125 with reflex U/S
2. Usual Care

Followed for 10.9 to 13 years for incidence and mortality

Figure 2. Ovarian Cancer Cumulative Cases and Deaths



Intervention group														
Cumulative cancers	28	74	113	139	174	202	212	2	10	26	54	74	102	118
Cumulative person-years	33908	100777	166273	230393	292223	341975	371833	34210	102191	169354	235475	299372	350870	381574
Usual care group														
Cumulative cancers	13	45	83	113	146	167	176	0	9	28	50	69	90	100
Cumulative person-years	33994	101279	167380	232046	294424	344734	374976	34260	102344	169617	235836	299903	351557	382502

Y-axis shown in blue indicates range of 0 to 120 cumulative events.

CA/125 U/S group—212 cancers (5.7/10,000 person yrs.)/118 deaths (3.1/10,000)
Usual Care group—176 cancers (4.7/10,000 person yrs.)/100 (2.6/10,000)
RR=1.21 (0.99-1.48)

Ovarian Cancer Screening

- UKCTOCS—randomized trial of MMS, U/S and no screening with primary outcome of reduction in ovarian/peritoneal cancer mortality
  - 202,000 women 1:1:2
  - Cancer mortality not impacted in primary analysis
  - Post hoc exclusion of prevalent cases demonstrates reduced mortality

Jacobs, et al, Lancet 2016

UKCTOCS

Jacobs, et al, Lancet 2016

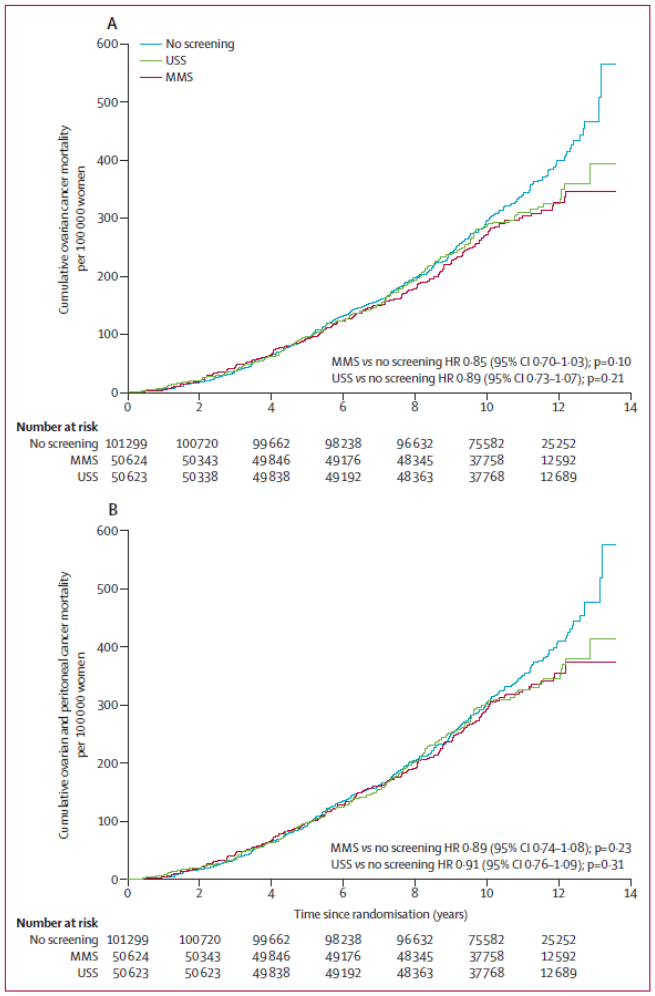


Figure 2: **(A) Cumulative ovarian cancer and (B) ovarian and peritoneal cancer deaths**
The Royston-Parmar model is shown in the appendix (p 12, 13). HR=hazard ratio. MMS=multimodal screening. USS=ultrasound screening.

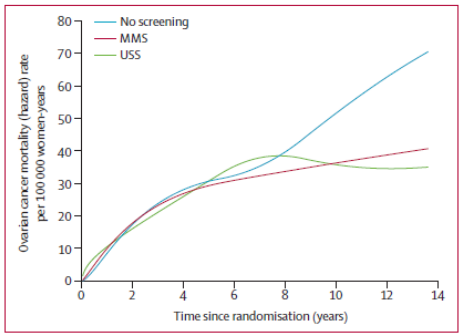
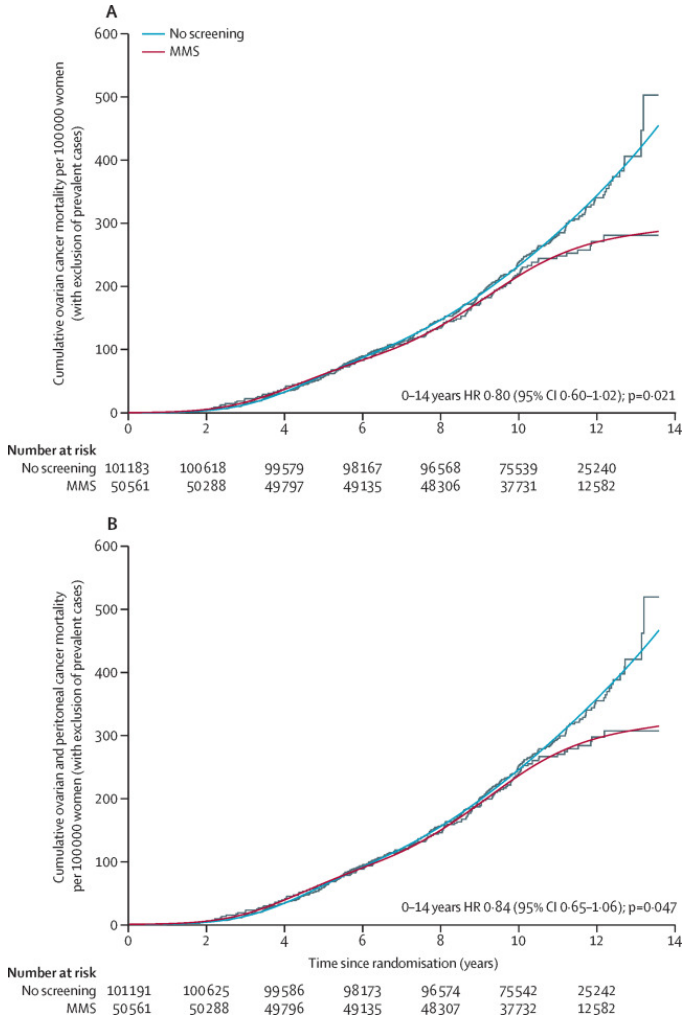


Figure 3: **Rates of ovarian cancer**
The figure including confidence limits is in the appendix (p 14).
MMS=multimodal screening. USS=ultrasound screening.

MMS group
8% ↓ yrs 1-7
25% ↓ yrs 8-14

UKCTOCS



MMS group
20% ↓
(p=0.021)

Jacobs, et al, Lancet 2016

Appendix Table 1. **What the USPSTF Grades Mean and Suggestions for Practice**

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer/provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer/provide this service.
C	*Note: The following statement is undergoing revision.* Clinicians may provide this service to selected patients depending on individual circumstances. However, for most individuals without signs or symptoms, there is likely to be only a small benefit from this service.	Offer/provide this service only if other considerations support offering or providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the clinical considerations section of the USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

From: Screening for Ovarian Cancer: U.S. Preventive Services Task Force Reaffirmation Recommendation Statement

Annals of Internal Medicine. 2012; 157(12):900-904. doi:10.7326/0003-4819-157-11-201212040-00539

Annals of Internal Medicine

U.S. Preventive Services TASK FORCE
www.USPreventiveServicesTaskForce.org

SCREENING FOR OVARIAN CANCER
CLINICAL SUMMARY OF U.S. PREVENTIVE SERVICES TASK FORCE RECOMMENDATION

Population	Asymptomatic women without known genetic mutations that increase risk for ovarian cancer
Recommendation	**Do not screen for ovarian cancer.**
	Grade: D

Risk Assessment	Women with *BRCA1* and *BRCA2* genetic mutations, the Lynch syndrome (hereditary nonpolyposis colon cancer), or a family history of ovarian cancer are at increased risk for ovarian cancer. Women with an increased-risk family history should be considered for genetic counseling to further evaluate their potential risks. "Increased-risk family history" generally means having 2 or more first- or second-degree relatives with a history of ovarian cancer or a combination of breast and ovarian cancer; for women of Ashkenazi Jewish descent, it means having a first-degree relative (or 2 second-degree relatives on the same side of the family) with breast or ovarian cancer.
Screening Tests	Transvaginal ultrasonography and serum cancer antigen (CA)–125 testing are the most commonly suggested screening tests.
Treatments	Treatment of ovarian carcinoma includes surgical treatment (debulking) and intraperitoneal or systemic chemotherapy.
Balance of Benefits and Harms	Annual screening with transvaginal ultrasonography and serum CA-125 testing in women does not decrease ovarian cancer mortality. Screening for ovarian cancer can lead to important harms, including major surgical interventions in women who do not have cancer. Therefore, the harms of screening for ovarian cancer outweigh the benefits.
Other Relevant USPSTF Recommendations	The USPSTF has made a recommendation on genetic risk assessment and BRCA mutation testing for breast and ovarian cancer susceptibility. This recommendation is available at www.uspreventiveservicestaskforce.org.

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to www.uspreventiveservicestaskforce.org.

Should you be screened for ovarian cancer?

Are You Eligible?

This study is available for women 50-74 years old who:

- **Are post-menopausal (no period for one year or longer)**
- **No cancer treatment in the past 12 months (talk to study coordinator for exceptions)**
- **Have at least one ovary**
- **Have a healthcare provider (whomever provides your yearly well-woman exam)**

With this trial, investigators are studying an algorithm using the CA 125 blood test to determine if regular testing can help detect ovarian cancer at an earlier stage.

Study Benefits:

- Receive possible ovarian cancer screening test at no cost.
- By participating in cancer research you may help advance medical science and help others who will battle cancer in the future.

Study Procedures:

- Phone interview
- Blood test (annually or more often, if indicated)
- Medical history questionnaire and surveys (optional)
- Transvaginal ultrasounds (only if indicated)

Confidentiality Notice:
All information you provide, as well as your blood sample results, will be completely confidential. No one outside this study may have access to your information without your permission.

To participate, please contact Oncology Research at Women & Infants Hospital, at (401)274-1122, ext. 47112

Women & Infants
A MEMBER OF CARE NEW ENGLAND

SYMPTOMS

Development of an Ovarian Cancer Symptom Index—*Possibilities for Earlier Detection*

Goff, et al, Cancer 109 (2) 221-7

- Historically, ovarian cancer has been called the ***silent killer,*** because it was believed that symptoms did not develop until the disease reached advanced stages, when the chance of a cure was poor.

- Per the WHO, ovarian cancer is a good candidate for screening because early detection yields better survival. To date, no studies have demonstrated that screening, even in high-risk populations, has an impact on the morbidity or mortality of the disease.

- Currently, ACOG recommends against population-based screening for ovarian cancer

- The USPSTF has assigned routine screening for ovarian cancer a grade of D, based on lack of benefit.

Development of an Ovarian Cancer Symptom Index—*Possibilities for Earlier Detection*

Goff, et al, Cancer 109 (2) 221-7

- Assessment of symptoms types, frequency, severity and duration
- Exploratory Sample—select factors that predicted cancer and create symptom index
- Confirmatory Sample—Assess symptom index prospectively

*Symptom Index—Considered positive if any of 6 symptoms occurred > 12 x/month but < 1 yr.

Development of an Ovarian Cancer Symptom Index
Possibilities for Earlier Detection

Symptom	Have you experienced this symptom? Is so, please rate the severity: (0=no symptom, 1=minimal, 5=severe)	How many days per month did you experience this symptom?						How long did this symptom persist? (Months)						
		<1	1–2	3–6	7–12	13–19	≥20	<1	1–2	3–4	5–6	7–9	10–12	>12
Pain														
Pelvic (lower abdomen)	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Abdominal	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Back	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Eating														
Indigestion	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Unable to eat normally	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Feeling full quickly	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Nausea or vomiting	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Weight loss	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Abdomen														
Abdominal bloating	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Increased abdomen size	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Able to feel abdominal mass	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Bladder														
Urinary urgency	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Frequent urination	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Bowels														
Constipation	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Diarrhea	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Menses														
Menstrual irregularities	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Bleeding after menopause	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Intercourse														
Pain during intercourse	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Bleeding with intercourse	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Miscellaneous														
Fatigue	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Leg swelling	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Difficulty breathing	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Other _____	0 1 2 3 4 5	☐1	☐2	☐3	☐4	☐5	☐6	☐1	☐2	☐3	☐4	☐5	☐6	☐7
☐ **No symptoms**														

Goff BA, et al, Cancer, Volume: 109, Issue: 2, Pages: 221-227, First published: 08 January 2007, DOI: (10.1002/cncr.22371)

Development of an Ovarian Cancer Symptom Index—

Possibilities for Earlier Detection

Goff, et al, Cancer 109 (2) 221-7

TABLE 2
Results of Logistic Regression for Exploratory Sample. Odds Ration for Cancer Versus Controls

	OR (95% CI)	
Variable	<6 Months*	<12 Months*
Pelvic/abdominal pain	19.1 (2.2–163.1)	23.3 (3.9–163.9)
Increased abdominal size/bloating	11.2 (2.2–58.3)	5.8 (1.4–23.9)
Urinary frequency/urgency	5.3 (.9–30.7)	5.2 (1.0–25.1)
Feeling full/difficulty eating	1.0 (0.1–9.9)	0.9 (0.1–6.3)

OR indicates odds ratio; 95% CI, 95% confidence interval.

* Frequency >12 times/month.

Development of an Ovarian Cancer Symptom Index—

Possibilities for Earlier Detection

Goff, et al, Cancer 109 (2) 221-7

TABLE 3
Logistic Regression of Confirmatory Sample (*P* Values)

		P	
Variable	Total	Age <50 years	Age ≥50 years
Pelvic/abdominal pain	<.001	.016	.007
Urinary symptoms	.579	.215	.587
Feeling full/difficulty eating	.010	.957	.988
Increased abdominal size/bloating	<.001	.004	.020
Negative affect	.344	.293	.795
Depression	.208	.020	.928
Age	.028	—	—

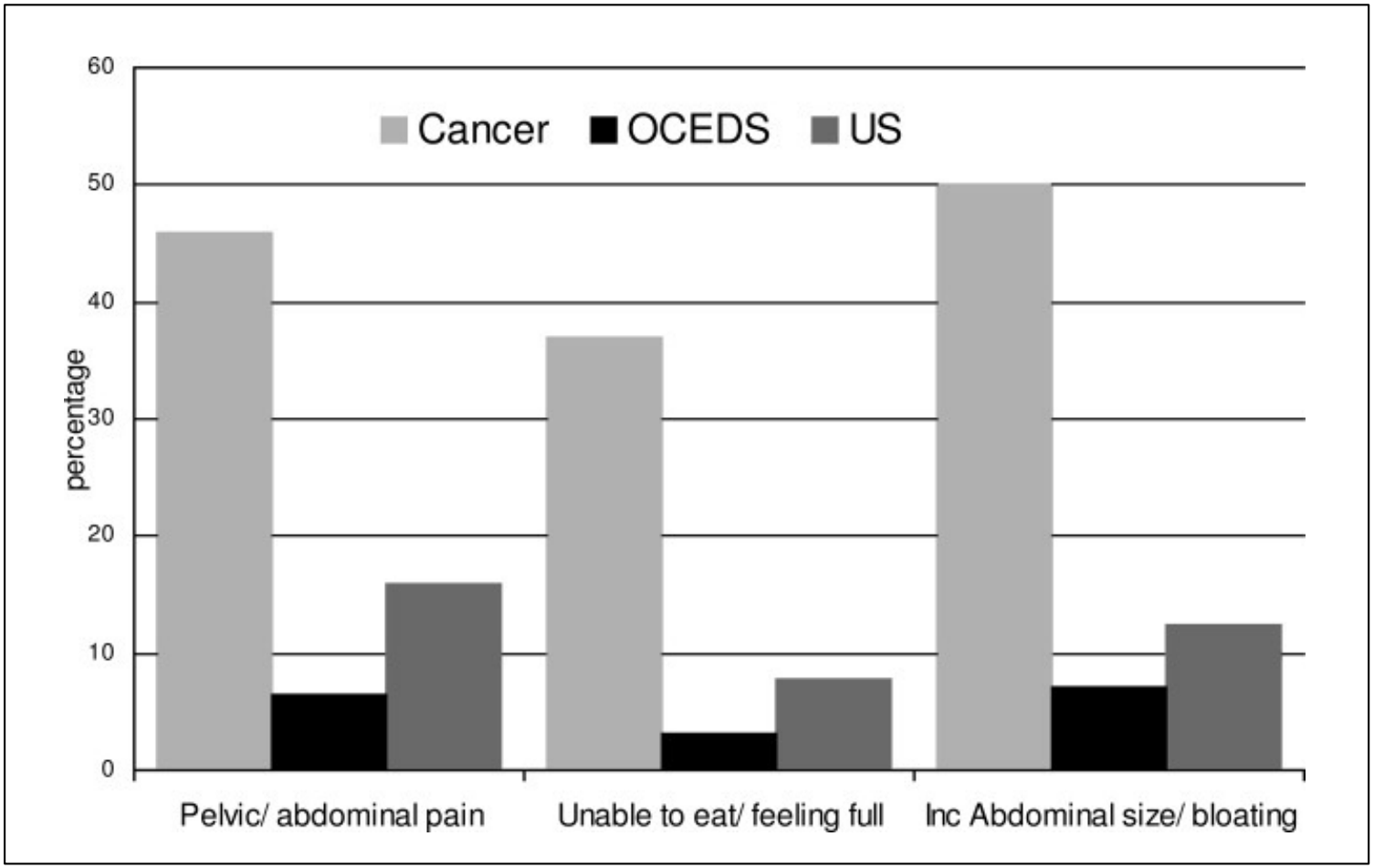
Sensitivity of 56.7 for early stage disease and 79.5% for advanced stage Specificity better with advancing age

**They did find that older patients presented fewer symptoms

Symptoms

- pelvic/abdominal pain*
- urinary urgency/frequency*
- increased abdominal size/bloating*
- difficulty eating/feeling full
- Symptoms are considered significant if
  - present for <1 year
  - occurred >12 days per month.
- *associated independently with cancer were
- pelvic/abdominal pain (P <.001)
- increased abdominal size/bloating (P<.001)
- difficulty eating/feeling full (P = .010)

Development of an ovarian cancer symptom index



Cancer, Volume: 109, Issue: 2, Pages: 221-227, First published: 08 January 2007, DOI: (10.1002/cncr.22371)

Less Common Symptoms Associated with Ovarian Cancer

Several other symptoms have been commonly reported by women with ovarian cancer. However, these other symptoms are not as useful in identifying ovarian cancer because they are also found in equal frequency in women in the general population who do not have ovarian cancer.

- Fatigue
- Indigestion
- Back pain
- Pain with intercourse
- Constipation
- Menstrual irregularities

KNOW THE SYMPTOMS

BLOATING

DIFFICULTY EATING

PELVIC / ABDOMINAL PAIN

URINARY FREQUENCY

If these symptoms occur for **MORE THAN 2 WEEKS** and these symptoms are new or unusual for you, see a gynecologist and ask about ovarian cancer. Research shows that seeing a gynecologic oncologist for surgery and treatment significantly improves outcomes.

www.ocrahope.org

REFERRAL

A Population-Based Study of Patterns of Care for Ovarian Cancer: Who Is Seen by a Gynecologic Oncologist and Who Is Not?

Michael E. Carney, M.D.,*[,1] Johnathan M. Lancaster, M.D.,† Clyde Ford, M.D.,‡
Alexander Tsodikov, Ph.D.,§ and Charles L. Wiggins, Ph.D.[¶]

TABLE 2

Incident Epithelial Ovarian Cancer Cases Diagnosed among Utah Residents during the Time Period 1992–1998: Comparison of Cases Seen/Not Seen by a Gynecologic Oncologist by Age, Place of Residence, and Year of Diagnosis

	Seen by a gynecologic oncologist:				
	Yes		No		
Characteristic	No. cases	Row percent	No. cases	Row percent	Statistical test
Age (years) at diagnosis					
<40	42	35.6	76	64.4	$\chi^2_{df=4} = 56.92$
40–49	65	54.6	54	45.4	$P < 0.01$
50–59	85	54.5	71	45.5	
60–69	75	42.6	101	57.4	
70+	66	23.7	213	76.3	
	(Median age 57 years)		(Median age 65 years)		
Residence at diagnosis					
Urban	282	42.7	378	57.3	$\chi^2_{df=1} = 14.93$
Rural	51	27.1	137	72.9	$P < 0.01$
Calendar year of diagnosis					
1992	48	42.5	65	57.5	$\chi^2_{trend} = 11.10$
1993	25	23.2	83	76.8	$P < 0.01$
1994	40	31.0	89	69.0	
1995	46	37.7	76	62.3	
1996	49	43.4	64	56.6	
1997	61	46.6	70	53.4	
1998	64	48.5	68	51.5	

Older, rural, earlier in study
less likely to be referred

Gynecologic Oncology 84, 36–42 (2002)

A Population-Based Study of Patterns of Care for Ovarian Cancer: Who Is Seen by a Gynecologic Oncologist and Who Is Not?

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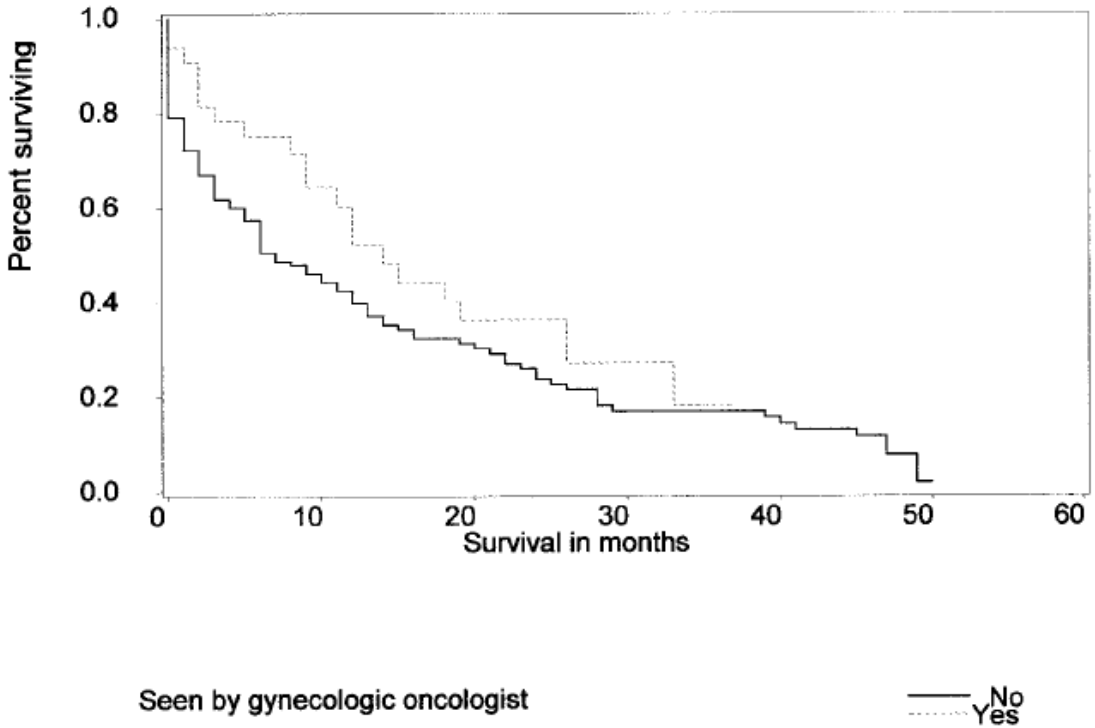

FIG. 2. Kaplan–Meier survival curves for distant-staged epithelial ovarian cancer cases in Utah: Patients seen/not seen by a gynecologic oncologist over 70 years of age with advanced disease.

Why should a woman who has indications of ovarian cancer seek referral to a gynecologic oncologist as soon as possible?

The importance of being treated by a gynecologic oncologist cannot be stressed enough. According to numerous medical studies, there are significant survival advantages for women who are managed, operated on and treated by a gynecologic oncologist. Why?

- A gynecologic oncologist is a subspecialist who specializes in treating women with reproductive tract cancers.
- Gynecologic oncologists are initially trained as obstetrician/gynecologists and then undergo three to possibly more than five years of specialized education in all of the effective forms of treatment for gynecologic cancers (surgery, radiation, chemotherapy and experimental treatments) as well as the biology and pathology of gynecologic cancers.
- Gynecologic oncologists are five times more likely to completely remove ovarian tumors during surgery.
- Eighty percent of ovarian cancer patients receive inadequate surgical debulking–the removal of tumor tissue during surgery–and staging when done by non-gynecologic oncology surgeons.
- Survival rate and outcomes for women with ovarian cancer vastly improve with gynecologic oncologists.
- For those women with ovarian cancer who live in rural areas that may not have a gynecologic oncologist at a local hospital, her care can be supervised by a gynecologic oncologist at a major medical center who has relationships with medical oncologists in surrounding areas to provide the chemotherapy treatment.

How can I find a gynecologic oncologist in my area?

OCRA ovarian cancer research alliance

Call The Foundation for Women's Cancer toll-free hotline at 1-800-444-4441 or visit them online at www.wcn.org.

SUMMARY

ACOG COMMITTEE OPINION

Number 716 • September 2017
(Reaffirmed 2019)

(Replaces Committee Opinion Number 477, March 2011)

Committee on Gynecologic Practice
Society of Gynecologic Oncology

This Committee Opinion was developed by the American College of Obstetricians and Gynecologists' Committee on Gynecologic Practice and the Society of Gynecologic Oncology (SGO) in collaboration with committee member Kristen A. Matteson, MD, MPH, and SGO members Camille Gunderson, MD and Debra L. Richardson, MD.

The Role of the Obstetrician–Gynecologist in the Early Detection of Epithelial Ovarian Cancer in Women at Average Risk

Recommendations and Conclusions

The American College of Obstetricians and Gynecologists and the Society of Gynecologic Oncology offer the following recommendations and conclusions:

- Currently, there is no strategy for early detection of ovarian cancer that reduces ovarian cancer mortality.
- The use of transvaginal ultrasonography and tumor markers (such as CA 125), alone or in combination, for the early detection of ovarian cancer in average-risk women have not been proved to reduce mortality, and harms exist from invasive diagnostic testing (eg, surgery) resulting from false-positive test results.
- Epithelial ovarian cancer is most commonly detected in an advanced stage (65% of cases are stage III or stage IV) when the cure rate is only 18%.
- Early stage (localized) ovarian cancer is associated with improved survival.
- Taking a detailed personal and family history for breast, gynecologic, and colon cancer facilitates categorizing women based on their risk (average risk or high risk) of developing epithelial ovarian cancer.
- The patient and her obstetrician–gynecologist should maintain an appropriate level of suspicion when potentially relevant signs and symptoms of ovarian cancer are present.

WHAT *YOU* **NEED TO KNOW** ABOUT
OVARIAN CANCER

RISK FACTORS

Many factors can increase or decrease a woman's risk of developing ovarian cancer.

INCREASES RISK

- FAMILY HISTORY OF BREAST, OVARIAN OR COLON CANCER
- GENETIC MUTATIONS, LIKE BRCA
- POST-MENOPAUSAL
- 40+ INCREASED AGE

DECREASES RISK

- PREGNANCY
- BREASTFEEDING
- ORAL CONTRACEPTIVE USE

#1 CAUSE OF **GYNECOLOGIC CANCER DEATHS**

#5 CAUSE OF **CANCER-RELATED DEATH** IN WOMEN

#11 **MOST COMMON CANCER** IN WOMEN

EVERY 23 MINUTES another woman is diagnosed with ovarian cancer in the U.S.

21,750 NEW CASES will be diagnosed this year

13,940 WOMEN will die this year

1 in 78 WOMEN will develop ovarian cancer in her lifetime

SURVIVAL RATES

MORTALITY SURVIVAL

YEAR 5 — 48%

YEAR 10 — 35%

CURRENTLY THERE IS **NO EARLY DETECTION** TEST FOR OVARIAN CANCER

A PAP TEST **WILL NOT DETECT** OVARIAN CANCER

Most ovarian cancer cases are diagnosed when the disease is advanced.

ONLY 15% of cases are diagnosed in the early stages.

KNOW *THE* SYMPTOMS

- BLOATING
- DIFFICULTY EATING
- PELVIC / ABDOMINAL PAIN
- URINARY FREQUENCY

If these symptoms occur for **MORE THAN 2 WEEKS** and these symptoms are new or unusual for you, see a gynecologist and ask about ovarian cancer. Research shows that seeing a gynecologic oncologist for surgery and treatment significantly improves outcomes.

OCRA ovarian cancer research alliance

Statistical information from: American Cancer Society. Cancer Facts & Figures 2020.

Research. Advocacy. Support.

ocrahope.org

WHAT WOULD YOU

WANT DONE

FOR YOUR

LOVED ONE

UNDER

THOSE

CIRCUMSTANCES ?

THANK YOU